

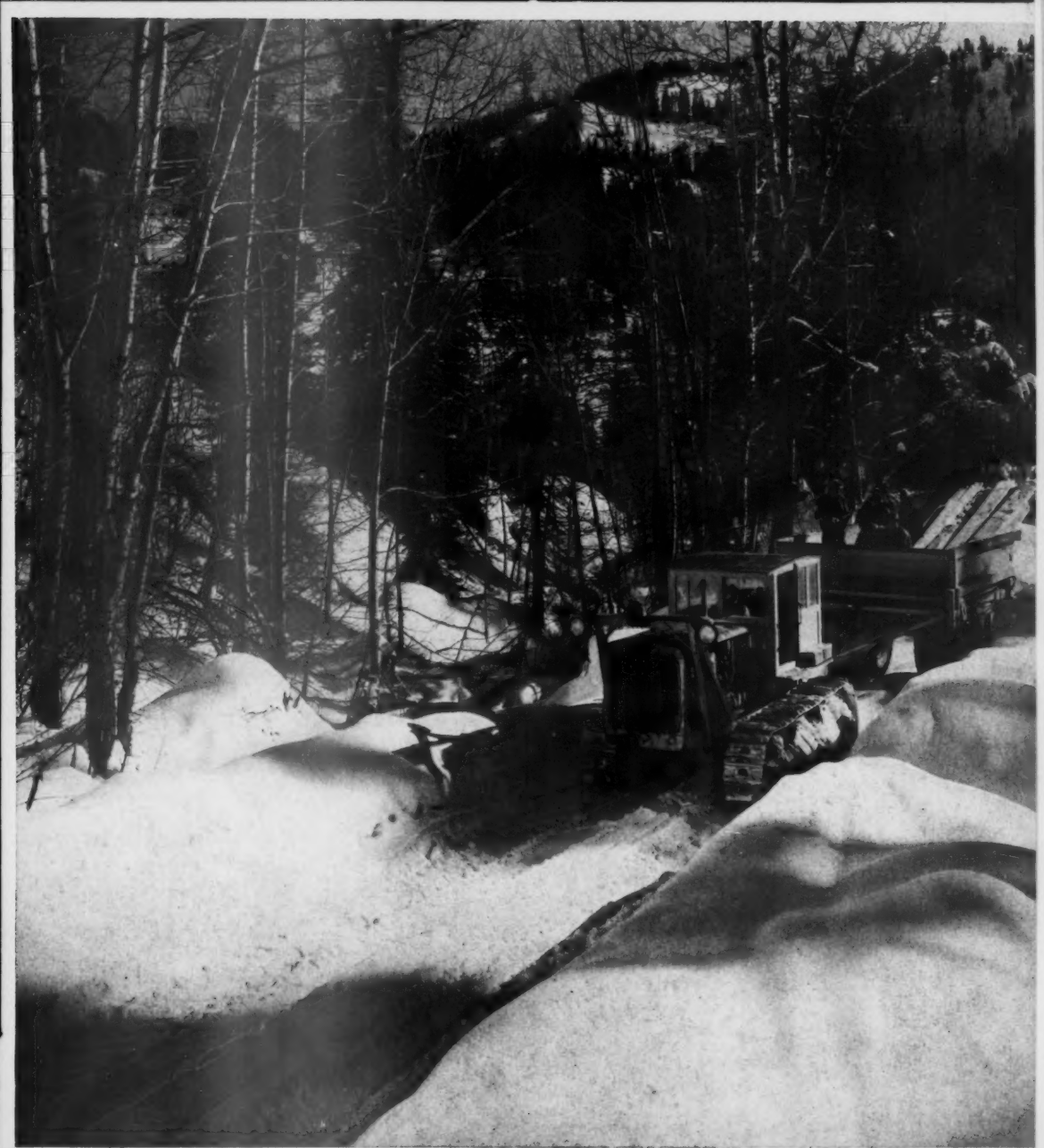
# MINING CONGRESS JOURNAL

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# THE AMERICAN MINING CONGRESS

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### TO ALL MINING MEN:

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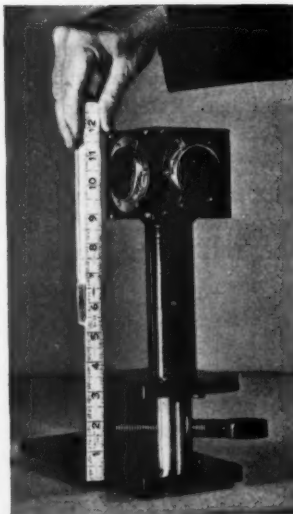
Here is a new safety device that has created a lot of interest among coal-mine operators. It's a reflector-type target stand for mine switches that's small, inexpensive and effective.

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# MINING CONGRESS JOURNAL

Vol. 25

JUNE, 1939

No. 6

Abolition of the Coal Commission and transfer of its functions to the Secretary of the Interior, while generally welcomed by the industry, will undoubtedly result in further delay in establishing minimum prices, and tend to swell the tide of criticism against many features of present Federal attempts to regulate coal mining. The studied and dispassionate address by George B. Harrington, presented at the 16th Annual Coal Convention of the American Mining Congress, on "Merits and Demerits of Federal Regulation of the Coal Industry," is therefore particularly timely and worthy of your careful study. It is carried in full in this issue, beginning on page 18.

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FRONT COVER: Hauling lumber and supplies to Cornucopia gold mine in Oregon. Photograph taken in January, presented on our June cover with the hope that it may have a cooling effect when the mercury gets well up in the 90's, as has been the case for many days already in Washington.—*Courtesy Caterpillar Tractor Co.*

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*Opinions expressed by authors within these pages are their own, and do not necessarily represent those of the American Mining Congress*

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JUNE, 1939

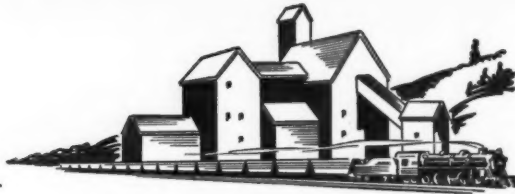
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## Why Depression Continues

IF THE administration desires to know why business remains dormant, why unemployment is still a major problem, why it seems necessary to continue Government spending to prevent starvation and want, a careful examination of the recent record made by the mining industry before the Senate Committee on Education and Labor will answer the inquiry.

No intelligent owner of unemployed capital will, for a moment, consider investing it in an enterprise providing employment of workers so long as its operations are to come under the control of an agency so biased and so unfair as the N. L. R. B.

That an agency with judicial powers shall also act as investigator and prosecutor, and not only render grossly unfair and biased decisions but gloat over its activities in aiding one side of the many labor disputes, developed under its supervision, creates a condition in which investors cannot safely enter.

The shrewd leaders of organized labor have ever been ready to use a fully approved catch phrase as a medium to carry a disguised iniquity.

Collective bargaining is approved by practically all employers of labor in the mining industry. The fixing of labor conditions by surrender, to avoid a strike, is not a bargain.

The writer has had more or less intimate relations with many of the employers of labor in the mining industry for a quarter of a century. These have almost unanimously approved the principles of collective bargaining, and in many cases had utilized these principles long before the phrase became an agency to carry the hateful principle of coercion.

It is almost astounding that the public mind can be so completely influenced by the continued reiteration of a half truth. This was manifest in the remarks of Senator Elmer D. Thomas, Chairman of the Senate Committee on Labor and Education, in its hearing upon proposed amendments to the National Labor Relations Act.

Senator Thomas expressed great gratification at the seeming change in the attitude of employers of labor upon the principle of collective bargain-

ing. After listening to the presentations made in behalf of the mining industry, Senator Thomas expressed his approval and surprise by saying that:

"This hearing is probably in the light of industrial relations, one of the most remarkable hearings I have ever taken part in. We have had almost unanimous feeling on the part of witnesses representing organizations which ten years ago would never have testified in the way they have testified today. The right to collective bargaining is accepted, it is granted. . . . And I want to commend everybody that has been here this morning for definitely having that attitude and wanting to be constructive in the suggestions which they have made."

It is most gratifying and encouraging to find that the real attitude of the mining industry in its labor relations is beginning to be understood. This attitude is of long standing and has been recognized and practiced by many of the leading mining organizations for many years.

The testimony of Mr. D. D. Moffat of the Utah Copper Company showed that for more than 25 years that company had in effect a collective bargaining practice, so satisfactorily operated that even a guilty verdict on charges trumped up by professional labor organizers was unable to disturb that most friendly relation.

Mr. Moffat outlined the expenditures, for the benefit of the company's employes, of more than two millions of dollars in club houses, parks, recreation grounds, etc., and yet his company was found guilty by the N. L. R. Board of unfair practices at the complaint of a few roving trouble makers.

So long as these conditions continue, so long as government, instead of being a fair arbitrator of the disputes between its citizens, makes of itself the champion of any side of any controversy, just so long will the lack of investment and employment necessitate increasing aid to the unemployed, increasing tax burdens and increasing evidence of the failure of New Deal principles.

*J. H. Cleverly*



# MINING CONGRESS JOURNAL

Vol. 25

JUNE, 1939

No. 6

Richard J. Lund, Editor

## A SETBACK FOR SAFETY

DEEP concern is being openly expressed by industry throughout the country over the effect of a recent announcement of the Wage-Hour Division of the Department of Labor on the general safety movement, in which mining has such a vital and integral part.

The particular ruling involved comprises paragraph 15 of Interpretative Bulletin No. 13 on "Determination of hours for which employes are entitled to compensation under the Fair Labor Standards Act of 1938," released May 3, and reading as follows:

"15. Time spent in attending meetings and lectures sponsored by the employer (whether or not attendance is voluntary) should be considered time worked if such meetings and lectures are related to the employe's work, as, for example, meetings and lectures for the purpose of teaching the employe the use of new types of machinery on his job, mine rescue, fire prevention and control. In addition, time spent in attending any meetings and lectures should be considered hours worked if attendance is not wholly voluntary."

This regulation strikes at the very heart of the excellent work done so effectively by the U. S. Bureau of Mines in fostering mine safety through its first-aid and mine rescue training courses. Equally endangered are scores of safety meets sponsored by large numbers of mining companies throughout the country. News is already at hand that one large safety meet has been cancelled and that a large state mines bureau will cease its safety and mine rescue training activities as a result of the ruling.

Wording of the regulation is such as to require payment of wages for time spent at safety meets and in taking first aid courses if the management so much as nods its head in assenting to the performance of this service by government agencies; and experiences of these bodies has conclusively shown that without the full cooperation of mine management their safety work is virtually worthless.

Certain it is that the great majority of mining companies, having been saddled with constantly increasing expenses through various taxes, compensation payments, social security

payments, etc. ad infinitum, cannot afford to assume this additional burden, when margins are so very slim or absent entirely.

Instances of lives saved and suffering abated through prompt application of practices learned through safety and first aid training are common reading in the daily press. Brilliant victories have been scored by the safety movement in the past few decades in conserving human lives and mitigating suffering.

Are all these gains to be thus lost through such a burdensome handicap as is embodied in the Wage-Hour ruling? There is no question but that a storm of criticism will shortly arise from countless sources, protesting this step that is bound to result in a serious setback to the safety cause—and all persons and organizations so concerned should make themselves heard.

## BENEFITS OF MECHANIZATION

MECHANIZATION, or in its broader aspects, technology, has come in for more than its share of adverse criticism during the past decade. However, leaders in various manufacturing industries in swelling numbers have accepted the challenge, and pointed out the many benefits of technologic improvements.

Numerous papers have been written by mining authorities addressed, in the main, to the operator, indicating savings that may be realized in a modernization program, but it remained for Dr. L. E. Young to give the industry a really broad and comprehensive picture of coal mine mechanization benefits in an address enthusiastically received at the 1939 Coal Convention of the American Mining Congress. Painting a vivid picture of indirect as well as direct good resulting from mine modernization, he showed clearly how up-to-date machinery installations in coal mines result in important benefits to mine workers, mining communities, railroads and consuming utilities, and to coal land owners. Indeed, it is quite plain after a careful reading of his address that maintenance of the best interests of these groups depends heavily on effectuation of such a program. His paper appears in full on pages 10 to 14 of this issue.

In line with Dr. Young's appeal for an enlivened publicity program to reach those vitally affected, copies of his address are being widely distributed. If you can assist in having these placed where they will contribute to this program, reprints will be gladly supplied.

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# BENEFITS Resulting from COAL MINE MECHANIZATION\*

WHEN the Program Committee scheduled this subject for today's session of the convention, it was presumed that wage negotiations of the Appalachian Conference and of the districts comprising that area would have been concluded, and that all other districts would have negotiated new district agreements. (At the time of writing this paper, negotiations are deadlocked, and no one can foresee the outcome.)

The last Appalachian Agreement provided for a Mechanized Mining Commission, which was

"to make a joint study of the problems arising from mechanization of bituminous coal production by the use of conveyors and mobile loading machines for the area covered by the Appalachian Joint Wage Agreement, including the problem of displacement of employees."

Unfortunately, the Commission could not agree on the detailed plan for the joint study, and independent studies were made by the Mine Workers and the Operators.

Somewhat the same problems of mechanization that have existed in other fields for a number of years have been developing in parts of the Appalachian field in recent years. The Bituminous Coal Commission Award of 1920 laid the foundation in collective bargaining for the introduction of new machines and new mining methods, but it was not until July 9, 1924, that the first local wage agreement covering mechanized mining was negotiated in Illinois. On September 16, 1928 a state-wide agreement was made in Illinois to cover the use of mobile loaders, conveyors, and pit-car loaders, and the cutting and drilling equipment serving mechanical loading devices.

During the ensuing years many problems relating to the use of mechanical loading devices have been met and solved by the operators in Illinois, Indiana, Wyoming and other states and districts in which underground mechanization progressed rapidly.

\* Presented to Coal Convention of the American Mining Congress, Cincinnati, Ohio, April 27, 1939.

## ● Shows Clearly How It Has Helped Mine Workers, Mining Communities, Railroads and Landowners, and Suggests Publicity Campaign to Broadcast This Theme

By DR. L. E. YOUNG  
Pittsburgh, Pa.

The marked increase in the use of mobile loaders and conveyors in the Appalachian field came later than the development in the Middle West and the Rocky Mountain states, and followed the inauguration of the 7-hour day and the substantial increases in wage rates. You are all familiar with the current statistics of production and the number of mobile loaders and conveyors installed in recent years.

The most striking increases in mechanically loaded tonnage have been reported from the districts in which the coal seams are thick and where other physical conditions are favorable. While the rate of growth in the thin-seam areas is slower, it is sufficient to show definite trends. Estimates of future growth are difficult to make on account of the depressed condition of industry and of the coal industry particularly, but to those who have studied the available data, and who are familiar with the physical conditions in the various fields, it seems logical that rapid mechanization of the fields having good physical conditions will continue until those fields are completely mechanized. At the same time, mechanization of other fields, having less favorable conditions, will progress, but at a slower rate.

It may be pointed out that so-called "mechanized mining" means a great deal more than the loading of large tonnages with powerful mobile machines. The problems arising are not the same in all districts, and the sav-

ings possible with one type of equipment or with one method of mining may have only limited local application. When thought is given to the benefits to the operator these different problems and conditions must be kept in mind.

There are various ways in which the great variety of problems relating to the face preparation and loading may be grouped:

1. Mass production with large mobile units as illustrated by the practice in Franklin County, Ill., and Logan County, W. Va.
2. Pitching seams, with varying thicknesses, such as those in Wyoming, Utah and the anthracite fields of Pennsylvania.
3. Thin seams, such as those in Central Pennsylvania, Virginia, Eastern Kentucky, Arkansas and Alabama.
4. Concentrated and intensive mining, as illustrated by work in Central and Western Pennsylvania, Ohio and parts of West Virginia.
5. Special face preparation and selective mining, as illustrated in Central Pennsylvania, West Virginia and Eastern Kentucky.
6. Dead work, such as lifting bottom and taking top in narrow work, and handling roof-materials and partings or boney in wide work.

## Problems Meriting Particular Attention

Among the general problems that merit particular attention are:

1. Face preparation, particularly to reduce the amount of small sizes and at the same time loosen the coal so that the loading machine will not have to dig.
2. Increased tonnage per cut, or per move of a mobile loader.
3. Concentration of work, without congestion and confusion.
4. Intensive mining without too severe a penalty for mechanical and other failures that will put a complete stop to production from a unit or section.

Substantial progress is being made in reduction and elimination of hazards, maintenance of equipment, and organization and management. It is commendable that there is such a fine spirit in the exchange of experience and data among operators in all fields.

Because there is such a fine spirit of cooperation among the operators, it seems timely that the members of the Coal Division of the American Mining Congress should (1) review the present situation, (2) determine what can be done by joint effort to advance mechanization, (3) formulate plans to accomplish desired ends and (4) take vigorous steps to achieve these goals.

## American Mining Congress Program on Mechanized Mining

In the fall of 1928 the American Mining Congress appointed a National Committee on Mechanized Mining and arranged a five-year program, the essential features of the work being (1) the intensive collecting of data on mechanized coal mining, (2) the analysis and publication of these data, (3) the publication annually of a textbook on the subject of mechanization to be known as The American Mining Congress Year Book on Mechanized Mining, (4) the supervision and sponsorship of research work on the subject, and (5) the development of more complete cooperation in the solution of the economic problems in the field of mechanization.

The benefits hoped to be attained were listed as follows:

"For the public it will mean cleaner and more economical coal; for the miner, safer working conditions through better supervised, better ventilated, concentrated working places—and an opportunity to raise materially his economic status because of the numerous specialized tasks incidental to the mechanical mining of coal; for the operator it will mean more

continuous and more profitable recovery of his coal; for the manufacturer of mining equipment, it offers a great opportunity to serve the industry and assist it in arriving at that efficiency and prosperity for which it is striving."

The program as outlined in 1928 can well be reaffirmed in 1939.

A large part of the benefits and savings resulting from modernization and mechanization have been passed on to the consumer and the general public. Undoubtedly this will continue, but concerted efforts should be made to have the complete story of mechanization presented to all those who will ultimately benefit substantially by mechanization.

In discussing the benefits of mechanization, it is proposed to show that, in addition to the consumer and the operator, there are others who are or should be vitally interested in promoting and extending the use of mobile loaders, conveyors and other devices of mechanized mining—namely, the mine workers, the mining communities, the railroads and other public utilities, and the coal land owners.

## Benefits to the Mine Worker

The most striking example of the recognition by workers, by a community, and by an entire district of the great benefits resulting from technologic achievement and progress, and the initiative, courage, and vision of leaders, is that of the native workers who are employees of the Tata Iron and Steel Company, India. This is the largest single steel plant in the British Empire. It had its beginning in 1902 when native leaders of India realized the importance to them of finding and developing iron deposits that would permit India to make enough iron and steel to take care of her own needs.

Dr. Charles Waterhouse, Professor of Metallurgy at the Massachusetts Institute of Technology, has just returned from India where he gave a series of lectures before the native employees of the great steel company which is a monument to the vision of the Indian leaders and to the technologic skill of the American engineer and metallurgist, Charles Page Perin, who designed and built the plant at the instigation of statesmenlike native leaders.

Where a jungle existed 30 years ago there is now an enterprising community of 100,000 souls, almost all natives, who appreciate what technology has done for them. Dr. Waterhouse says:

"The founders of that business are accorded a Founders Day each year, which this year ran



DR. L. E. YOUNG

for several consecutive days in March. The plant is thrown open to visitors who come in thousands, there are parades through the main city of Jamshedpur and neighboring towns. Floats carrying representations of the founders and of many departments and products of the plant are prominent parts of these parades, and the various things represented on the floats, including effigies of the founders, are almost objects of worship on the part of many of the Hindus."

The technologist has taken a new world into the remote confines of other lands, and he has worked miracles in our own country. When a new industry is created or new products are developed, the world marvels and we herald the innovations as benefiting mankind. But when the technologic advance is made within a going industry, and particularly in an industry that is struggling against great odds, we generally fail to give credit where credit is due. If an industry is forced to make innovations when there is an abundance of labor, we generally fail to appreciate the real good these innovations are doing, and think only of the small number of men who may be displaced temporarily. We do not value as highly as we should, the larger good that results to the working force as a whole, and to the community supported by the industry.

It is important that the advantages and disadvantages of mechanization from the viewpoint of the mine worker be studied and the true picture be presented to the mine workers. One of the best ways to present this is locally through the mine management. It is therefore vital that the mine management understands the economic problems and results of mechanization and, as well, the ultimate disaster that befalls districts that do not modernize.

It is suggested that simple illustrated leaflets, describing graphically the ef-



fects of mechanization in specific mining communities, be prepared and distributed. Illustrated talks should be given locally under as many auspices as possible, including the local unions.

Before real public support of mechanization can be developed it will be necessary to show the leaders among the mine workers that mechanization will "save jobs" and mechanization will "make jobs." A large part of the opposition to the installation and efficient use of new equipment can be converted into enthusiastic support if proper steps are taken.

In some of the large mines of Western Pennsylvania mechanization has resulted in the elimination of much of the heaviest lifting in connection with dead-work. There has been a marked reduction in the number of personal injuries, such as hernias and sprained backs during the last two years. After the men have been trained to the new work there is a substantial reduction in other personal injuries occurring at the face. This is true both as to severity and frequency. The experience of Western Pennsylvania as to safety is in accord with that of Wyoming, Illinois, Ohio and West Virginia mines.

Part of this improvement is due to better supervision. In the hand-loading mine there has generally been one boss to 40 or more men; in the mechanized mine usually there is a boss for not over 20 men.

The concentration of work in a few places permits the bosses to know the working-places better, and the hazards may be given personal supervision and taken care of with promptness and certainty.

The fact that men seldom work alone in a mechanized mine contributes to the elimination of hazards, for it is unlikely that the careless worker will be permitted to jeopardize the lives of his fellow-workers.

It is not the purpose of the writer to minimize the hazards of mechanization, but it is his firm conviction that the face-worker labors with less chance of injury in a well-managed mechanized mine than in a well-managed hand mine.

Reference has just been made to the injuries resulting from heavy lifting. In line with this thought, it may be noted that contrary to statements made that "at the end of the day the worker in a mechanized mine has expended more energy, more foot-pounds, and is more tired-out than after a day of hand-loading," it has been found that the reverse is true.

A very reliable operator is authority for the following statement and has furnished data to support it:

"We made a very exhaustive time study and analysis of the energy used in two like places over a period of eleven consecutive working days. Both of these were in places in which pillars were being removed; one by means of hand-loading methods, the track laid in the place, and single cars hand-loaded, and the other by hand-loading onto a shaking conveyor. In the case of the hand-place, the drilling was done by hand, and in the mechanical-loading place, the drilling was done with an electric drill.

"As a result of very exact observations and calculations, we determined that it takes 3.8 times as much energy to load a pound of coal from the floor into a mine car (50 in. high above the floor) as it does to load it from the floor onto a shaking conveyor (average height 14 in. above the floor).

"We also determined that at the end of the day the man working as a hand-loader expended more than twice as much energy, expressed in foot pounds, as was expended by the man loading onto a shaking conveyor."

In a careful analysis of the practical question as to the physical effort of men employed in conveyor loading as compared with hand-loading, the records of another mine using hand-loading on conveyors show:

1. The hand loaders averaged 32 minutes more idle time per shift than the conveyor loaders.
2. Considering actual time worked and his manual effort, the conveyor loader works 54 percent as long to earn a dollar as the hand-loader, and performs much less severe labor.

The trend is away from the heavy manual labor of "digging" coal. With the advent of the cutting-machine and the power-drill, much of the severe labor was eliminated. The loading-machine and the self-loading conveyor have taken heavy burdens off the coal loader, and the conveyor of low height has served to reduce the drudgery of loading to a minimum.



The youth of this generation who see power-driven equipment in industry, agriculture and transportation are trying to avoid the drudgery of loading coal, and in another generation there will be a shortage of labor to load coal if hand methods are continued.

Moreover, the maintenance of mechanical loading devices requires a crew of mechanics who prefer this class of skilled work to the manual labor of loading coal.

The foregoing statements show that the mine worker is benefited substantially by the introduction and use of mobile loaders, conveyors and the auxiliary equipment required to serve them. For these reasons it is anticipated that when all the facts are known, the mine workers will cooperate fully in programs of mechanization which are planned primarily to save the industry from disastrous competition.

#### Benefits to the Mining Community

The importance of the bituminous coal-mining industry to the states and local communities in which coal mines are located requires little discussion—a protracted suspension soon shows how wide-reaching are the influences of the bituminous coal industry. The failure of mines to meet payrolls and to pay taxes brings suffering and want, and results in the closing of schools or the reduction of school terms. When the coal mines do not prosper it usually results in poor roads, poor sanitation, privation and decadence of the community.

It may not be out of place to give a few facts and authentic figures regarding the tax burden in certain coal mining districts and show what happens in these districts when the production of coal declines or actually ceases.

In Case "A" a certain bituminous coal company pays more than 50 percent of the school and road taxes in the township and, in addition, makes a substantial contribution to the budget of the county. The annual property taxes of the company for a number of years have ranged from \$45 to \$50 per acre of coal-lands owned, even when the mines are completely idle.

In Case "B" in the anthracite region of Northumberland County, Pa., the children are being deprived of their education and the county is unable to carry on its ordinary functions because a large coal company has been unable to pay its taxes. The company owes taxes since early in 1937 to 18 school and poor districts. Striking





Mechanization has given new life to entire communities. Above—Attractive coal mining community which was saved from becoming a ghost town through mine modernization

teachers have not been paid for a year and a half. The situation is critical because the mining company has been relied upon to support the community by payrolls and taxes, and can no longer pay at the old rates.

In Case "C" three bituminous coal mining companies have discontinued paying property taxes in another township having an assessed valuation of \$4,250,000, of which \$3,250,000 is coal property. Ten years ago the assessed valuation was \$7,250,000, and now the assessed valuation of coal property is declining about \$500,000 a year. Only 20 percent of the taxes levied on property other than coal property are being paid.

The number of men employed in coal mines within the township is of course declining, but the number of children enrolled in the public schools has not declined. The number of high school graduates in 1929 was 54 while in 1938 the number was 200. The State contributed \$90,000 to support the schools in this township in 1938, and there was a deficit of more than \$30,000.

When all the coal in workable seams has been mined, the evil day of closing the mines is inevitable. But sometimes a considerable amount of pillar coal could be recovered, or thinner beds might be mined and the life of the

mines thus extended, if mechanical loading devices were installed.

Unless the community interests itself in prolonging the life of the coal mines there will be:

1. A shifting of the tax burden, formerly carried by the coal operators, to other property holders of the tax district or
2. A shifting of the burden of maintaining certain services to the State, or
3. A lowering of the standards of education and of living in the community.

Mechanization has brought relief to some decadent districts, it has given new life to communities, and it has made possible the opening of thin seams in areas in which all the merchantable thick coal has been mined. When threatened by the competition of open-pit mines, the shaft mines of Illinois and Indiana have been able to survive solely because of the introduction of mobile loading machines. If it had not been for the courage and vigor of leaders of the industry, schools, hospitals, asylums and other eleemosynary institutions would have been jeopardized. Public officials and business men of many coal districts should be given the facts and should be shown that mechanization may be the means of protecting the future of many such communities.

#### Benefits to Railroads and Other Utilities

It is a well-known fact that the railroads receive in freight a larger sum per ton of coal hauled than the operator receives for the coal itself. In 1937 the total revenue received by the railroads for handling coal was over \$634,000,000, while in 1929 it was over \$827,000,000. In 1937 the railroads received 21 cents per ton more for freight than the operators received for their product. In 1938 the difference was even greater. It should be evident to the management of the railroads that, if mechanization can be used to increase the production of bituminous coal, it will be decidedly to the advantage of the railroads and their employees. The public utilities of the country are also vitally concerned in this program, not only on account of the power used in the operation of mines, but also because of the power requirements of the communities adjacent to and dependent on the coal fields. The decadence of coal mining communities has tremendous significance to public utilities.

#### Benefits to the Land Owner

Whether the coal is owned by the farmer, the operating coal company or a land company, the continued operation of mines, the payment of royalties or rent, and the payment of taxes by

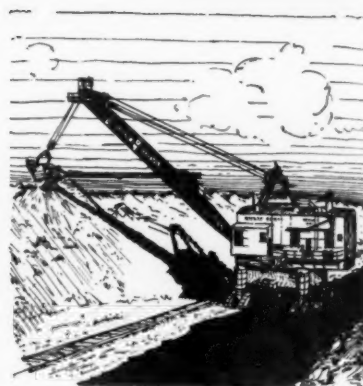
coal operators means much to the investor and to the community. The abandonment of mine openings and the failure to drain or pump portions of coal fields frequently means not only the total loss of investment in such openings and underground development, but also the postponement of the working of adjacent coal lands and depreciation of values. In several instances it has been to the advantage of the landowner to assist in the financing of mechanization, because it appeared to be the only practical way of saving the original investment and of making profitable operation eventually possible. From a long-range viewpoint there is no one more vitally concerned in the modernization and mechanization program than the landowner.

From the foregoing statements it may be concluded that there are many different reasons for communities not only accepting mechanization as a natural step in the evolution of the bituminous coal mining industry, but for actually sponsoring, actively and aggressively, programs for the introduction of mechanical loading devices. It may not be visionary to propose that local Chambers of Commerce, business men's associations, and service clubs take steps to interest capital in mechanizing the mines of a particular

community. Just as there are "drives" in support of "chests" and other community interests, so there may be drives to maintain payrolls of communities. The payrolls of the community are the fundamental source of income from which we may, with self-respect, pay our share in the American way. Schools, churches, clubs and other local organizations might properly interest themselves in the bread-and-butter payrolls that make their existence possible. In the mining communities, this means that the mine payroll is Economic Problem Number One. The part that modernization and mechanization play should not be overlooked. They may save a community from complete collapse.

### Suggestions

The intelligent development of the natural resources of a community is one of the true measures of its right to survive in the struggle for economic existence. However laudable may be the development of new industries and new products, it is just as laudable and just as vital to preserve, protect, encourage and assist the going industries and operations in a community, for they have contributed through payrolls and taxes to maintain the community in prosperity and with self-respect.



There never was a time in the history of bituminous coal mining in the United States when the thoughtful analysis of its problems and the co-operation of all interested parties was more needed.

It is proposed, therefore, that the American Mining Congress undertake, in a systematic manner, to present the case of coal mine modernization and mechanization to the railroads, to the public utilities, to the land owners, to the communities, and to the mine workers, so that the heartiest cooperation among all interested parties may be developed.

### Battelle Research Expanded

Contracts have been let by Battelle Memorial Institute, Columbus, Ohio, for the construction of a new research laboratory to take care of the expanding volume of industrial research, according to Clyde E. Williams, director. American industrialists are becoming increasingly research-minded, he said, and predicted that the nation's facilities for research will have to be greatly expanded in the immediate future.

Research expenditures by industry are growing by leaps and bounds, Mr. Williams said. The increased laboratory and office space at Battelle have been made necessary by the growing research activity in metallurgy, fuels, ceramics, and chemistry.

The new construction consists of a wing extending from the end of the present main building that will provide approximately 50,000 square feet of space on five floors. In this will be chemical and metallurgical laboratories, photographic and metallographic departments, physics laboratories, and a large industrial laboratory.

Provision is being made for the relocation and expansion of the mechanical testing laboratory. A new 200,000-pound tensile testing machine

is to be purchased to keep pace with developments in the field of metals. Constant temperature and controlled humidity rooms will be provided for chemical and metallurgical studies. The auditorium is being enlarged to increase its seating capacity, and additional administrative office space will be available on the ground floor. In effect, the research laboratory space in the main building will be practically doubled.

This is the second time in the short history of the Institute that space requirements have led to new construction. Less than two years ago a four-story building housing an experimental foundry and ore-dressing and coal preparation laboratories was completed and put into service. The main building itself was occupied and work began in the latter part of 1929. The staff now numbers about 180.

### Children and Blasting Caps

Renewed efforts are now being made in all parts of the country to lessen the number of accidents occasioned by children playing with blasting caps.

These accidents often result in children being blinded, or losing

fingers or hands, and thus going through life in a crippled condition. In some cases children are killed.

Most of these accidents occur in country districts where children find the caps in the neighborhood of blasting operations, where, in many cases, they have been left by careless workmen. Playing with these caps—such as picking them with nails, hitting them with hammers, or throwing them into bonfires, usually results in an accident.

Blasting caps are small copper cylinders used to detonate explosives in mines, quarries, construction work, and in blasting ditches, stumps and boulders. They are closed at one end and loaded with a sensitive and powerful explosive. Electric blasting caps are similar to the regular caps except that they have wires attached and are detonated by an electric current from a blasting machine.

When the cap explodes small particles of copper fly in all directions. Any child nearby may be hurt.

All parents and teachers are requested to warn children not to play with these blasting caps, but when they do find one, to notify an officer of the law or other responsible adult.

# Mining and Treating



Looking down on ramp and mill from vicinity of mine

## Low-Grade Quicksilver Ores at the Cloverdale Mine

THE Cloverdale mine, Cloverdale, Calif., has operated and produced quicksilver intermittently since 1857. However, it has only been in recent years that the method of mining and treatment has changed from former standard practice. Formerly, one had to have an ore averaging 5 or 6 lb. in order to mine and treat it at a profit. Today low-grade ores containing 1 lb. per ton of quicksilver can be treated profitably by large-scale mining methods followed by concentration.

Large-scale mining methods followed by concentration of the ore have been retarded heretofore because of the limiting factors concerned in its occurrence, as well as the unstable market conditions. The veins for the most part have been narrow, with the ore chutes lying very close to the hanging wall. The method of mining has been fairly restricted to square-setting. There are mines, however, where the veins are wide and rich, but with ore of high value. There is at present no need to concentrate ores of such grade when furnacing directly would be much the cheaper method of handling them.

The mine had been opened to a depth of 400 ft. and was mined from adits in the hillside at each convenient level. The ore was sorted at the

### • *Modern, Large Scale Methods Have Permitted Resumption of Operations at Old California Property*

By **GEORGE H. BURR**  
President-General Manager  
Cloverdale Mining Company

portals by means of chutes with screens. Generally, the minus 2 or 3 in. material was trammed to the three rail tramway and then lowered down the hill to the plant, where the ore was roasted in a Gould rotary furnace. The method of handling was costly, as it required the ore to be handled so many times in such a short distance.

The occurrence of a large outcrop with several million tons of low-grade ore gave rise to the possibilities of concentrating this deposit. Dry screening had been practiced on this outcrop without success. This was due to the fact that the ore was never quite dry enough. Although containing only a small percentage of moisture, the ore would have a tendency to ball up when screening to  $\frac{1}{8}$  in. or less. The ore occurs in the bedding planes of the chert, which is a blocky material too dense for the values to penetrate. With a certain amount of attrition, the cinnabar can be freed from the

chert and so give a good concentrate in the fines. However, in dry screening there is no way of controlling the dilution of dirt in the fines. It was with this in mind that a new concentrating plant was designed and built to handle 420 tons of 1-lb. material from this outcrop.

#### The Mine

The ore occurs in a highly fractured chert formation lying between sandstone walls. This formation is about 250 ft. wide, only 150 ft. of which is mined—the rest being moved for waste. The waste includes barren chert as well as diorite which has intruded the chert. The mineralization follows both walls and extends about 75 ft. from each. The deposit dips into the hill at about 30 degrees. The waste sandstone overlying the hanging wall must also be stripped as the mining proceeds from one level to another.



At the present time the mine is opened up on four levels to a depth of 200 ft.

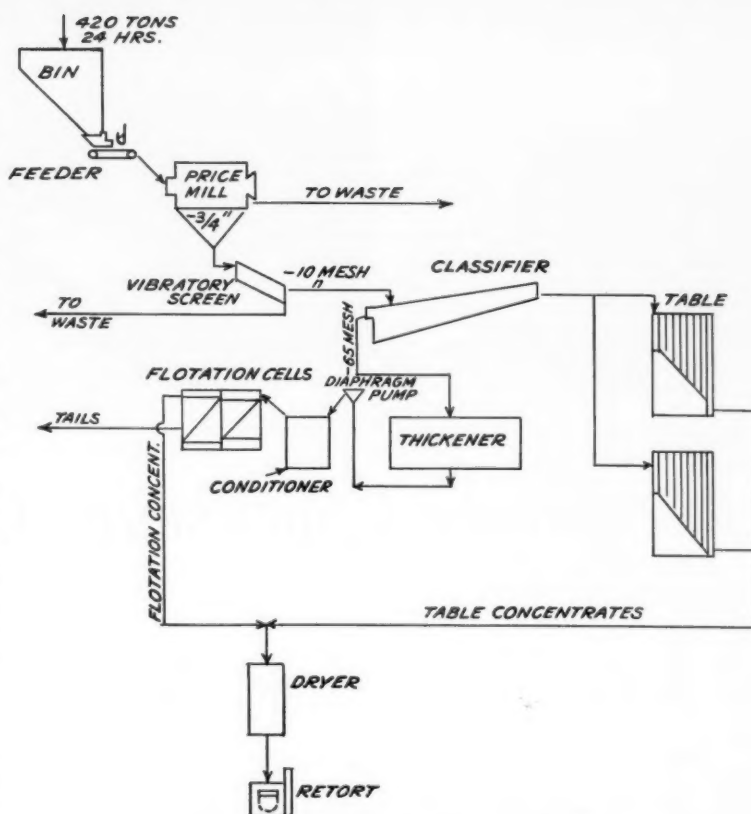
Four hundred and twenty tons of ore are handled to the bins each 24 hours. The waste is trucked away and dumped on the opposite side of the hill. The mine is worked in two shifts of eight hours each.

As previously mentioned, the ore is mined by open pit in benches of 50 ft. As the chert is very friable, little powder is used per ton of ore mined. Sixteen-foot horizontal holes are drilled and sprung in the toe of the bench. Bag powder is blown in after springing. A round of 10 holes will supply ore for four or five days. Air is supplied by a 250-ft. Ingersoll-Rand portable compressor. Sullivan portable drills are used to facilitate moving from one level to another. The ore is loaded by means of a 1-cu.-yd. Northwest shovel and is carried to the bin in 3-yd. dump trucks. All ore moves downhill to the bin and makes the transportation problem very simple. Road maintenance is kept up with a Caterpillar diesel tractor.

#### The Mill

The trucks pass over a 50-ft. ramp and dump over a grizzly with 6-in. spacings. The oversize slides off the grizzly onto a chute, and is discharged over the hill. The minus 6-in. material goes to storage in a 500-ton bin.

The ore is carried on a conveyor belt from under the bin and is fed directly into a Price mill (see Fig. 1). This mill scrubs the 420 tons that is handled each day. It is 5' x 5' and is equipped with manganese liners which have punched holes of  $\frac{3}{4}$  in. diameter. These mills were formerly used for disintegrating cemented gold gravels. The milling process is predominantly one of screening, there being no crushing involved, except what grinding and crushing action takes place in the scrubber. As previously mentioned, the cinnabar occurs along the bedding planes of the chert, and by attrition in the mill the values are washed off and go into the circuit with the fines. It is the peculiarity of the Cloverdale ore that makes the following process amenable to this deposit. However, the scrubbing action that takes place in the Price mill is similar to that of a tube mill or of a Hadsell mill. The falling of rock upon rock is bound to give a certain amount of grinding without excessive sliming. As the cinnabar is soft, it pulverizes readily, and in the operation 90 percent of the values contained in the



Flow sheet showing details of concentration

run-of-the-mine ore will pass through a 10-mesh screen.

The oversize from the mill passes from the discharge to a 24-in. conveyor belt and is wasted. The  $\frac{3}{4}$  in. undersize goes to a Symons vibratory screen equipped with sprays. The vibratory screen oversize passes to a cross conveyor, which in turn delivers onto the main waste conveyor from the scrubber. The minus 10-mesh undersize goes to a Dorr rake classifier, which is set to deliver a minus 65-mesh material at the slime discharge.

#### Mill Heads Average One Pound per Ton

The heads to the mill average about 1 lb. per ton. Three hundred and twenty tons are screened off and wasted, leaving approximately 100 tons with 4 to 5 lb. heads, which actually pass to the classifier.

The 10-mesh sands from the classifier are tabled on two Conenco-type tables. The concentrates are caught in pans and are removed to a dryer as soon as filled. The middlings are returned to the circuit.

The minus 65-mesh material from

the classifier goes to a Dorr-type thickener with the pulp passing to a conditioner, where the reagents are added. At a 3-to-1 dilution the pulp goes to a bank of Krauf cells. The concentrates from these are dewatered and are taken to the dryer to be mixed with the sand concentrates. After some experimenting, it has been found that pentasol xanthate is the best collector and crysilic acid added at the flotation machine is the best frother. Kerosene is added in small amounts at the conditioner to depress any free sulphur in the ore.

#### Furnace Operation

The concentrates are thoroughly dried in order to prevent losses in the steam when being furnaced. Flotation concentrates when fired alone have a tendency to plug the condensers, while when mixed with the coarser sand concentrates are easily burned. The concentrates are weighed dry and placed in three pans, 24 in. by 18 in. Lime is added to each pan to insure the reaction of the sulphur with the oxygen of the lime. This prevents matting in the cast-iron "D" retort.





Concentrates are burned in the above retorts—and the quicksilver strained and bottled for shipment

The retorts are oil-fired, with both air and oil coming under pressure. The air is furnished by a blower connected to a 3-hp. motor.

One charge consists of three pans filled with 200 lb. of 50 percent concentrates. These in turn are placed in a standard "D" retort, where they remain for eight hours. The plant consists of two "D" retorts, and up to six charges a day are made. The retorts have water-jacketed condensers, and so far the losses have been inconsequential from leaks of stack losses.

The mercury runs into the pots placed behind each retort. The impurities—commonly called "soot" in the quicksilver business—are cleaned from the condensers after each charge, and are placed on the "hoeing" table for recleaning. The quicksilver is cleaned by straining and is then bottled and ready for shipment.

The cost of mining is 20 cents a ton, and that of milling 15 cents. This total cost of 35 cents a ton includes depreciation and depletion. The question of the cost of direct furnac-

ing as against concentration followed by retorting cannot be settled by the particular method used here. The cost of crushing and grinding is negligible, whereas somewhere else the concentration of quicksilver ores might demand fine grinding for the liberalization of the values, especially if the ore were hard and compact. This cost of grinding would hardly stand up against milling such low-grade ore as at the Cloverdale unless two to three times the tonnage could be handled.

### Mercury Production Increase

Despite continued civil war conditions in Spain, where the principal mercury reserves of the world are located, and the apparent increased demand for this metal in Germany and the United Kingdom, ample supplies were available for world consumption requirements in 1938, according to the Bureau of Mines, U. S. Department of the Interior. Italian production was maintained at the record rate achieved in 1937, approximately 67,000 flasks, but exports fell from 67,075 to 55,327 flasks. Exports from Spain were reported to have increased from 28,357 flasks in 1937 to about 40,000 flasks which would indicate that Spain supplied a larger share of world requirements in 1938 than in 1937.

Consumption of mercury in the United States was sharply lower in 1938 with output only 9 percent higher than in the preceding year and imports 88 percent lower. Imports of antimony-mercury concentrates from Mexico, reported in the trade to have been substantial, are not shown separately in foreign trade figures nor are they included in domestic production totals, but they did increase the amount of metal available for consumption.

Production in the United States amounted to 17,991 flasks in 1938 representing an increase of 9 percent over the relatively stationary outputs of 1937 and 1936. The increase was

largely due to greater production at the New Idria, Mt. Diablo, Mirabel, Oat Hill and Great Western mines in California and the Bonanza mine in Oregon. Greater activity at the above-mentioned properties more than offset the closing of the Oceanic mine in midyear, idleness at the South Bend mine, and reduced outputs from some properties that were operating during most of the year. California produced 12,277 flasks in 1938 compared with 9,743 flasks in 1937, or 68 percent of the country's total compared with 59 percent. Oregon produced 4,610 flasks compared with 4,264 flasks, but its share of the total remained relatively stationary at 26 percent. Production in Nevada remained unimportant but possibilities of an increase were claimed because of activity in the Bottle Creek district. Alaska produced some mercury in 1938. Output in Arkansas failed to show improvement, that in Texas declined and that in Washington remained insignificant.

The principal producing mines in 1938 were as follows: Mt. Diablo mine, Contra Costa County; Great Western, Mirabel, and Sulphur Bank mines, Lake County; Oat Hill mine, Napa County; New Idria mine, San Benito County; Klau and Oceanic mines, San Luis Obispo County; and Cloverdale mine, Sonoma County, in California; Bonanza mine, Douglas County; Horse Heaven mine, Jefferson County; Black Butte mine, Lane County; and Opalite mine, Malheur

County, in Oregon; and the Chisos and Rainbow mines, Brewster County, in Texas. These 15 mines accounted for 90 percent of the country's total compared with 86 percent produced by the 15 principal mines in 1937.

### Boat Trip of Illinois Miners

Program of the summer meeting and twenty-first annual boat trip of the Illinois Mining Institute, held June 9, 10 and 11, included the following:

Address of welcome by President Paul Weir.

"Accidents from Roof and Face Falls, and Methods for Their Prevention," by Benn Pitts.

"Caging and Hoisting and Increased Maintenance Due to Speed," by Dale Carter.

"What Qualities the Mine Employee Would Like in a Mine Foreman," by Dr. J. J. Rutledge.

"Coal Preparation Plant, Peabody Coal Co., Mine No. 24, Catlin, Ill.," by Jack R. Verhoeff.

Officers of the Institute include Paul Weir, president; Roy L. Adams, vice president; and B. E. Schonthal, secretary-treasurer.

# Merits and Demerits of Federal Regulation of the Coal Industry\*

NO ONE denies that a foremost problem of bituminous coal today is that of Federal regulation under the provisions of the Bituminous Coal Act, and the establishment of coal prices and marketing rules. The subject is not simple, and there is wide divergence of opinion on the problem within the industry. But all agree that the long delay in arriving at prices, or, more broadly, in arriving at a stabilized marketing policy, has been of tremendous handicap in an already difficult period.

So it is fitting that this subject, even if more economic, or perhaps I should say more political, than the usual topic discussed at Mining Congress conventions, should have a place on our program. But it is not an easy assignment. Nearly everything that can be said already has been said many times—in plain and fancy language. There are presentations of persuasive dignity and appeal. There are others of less convincing logic, but so entertainingly phrased as to bury almost completely an obvious bias or strictly partisan viewpoint. And, of more concern to me, there are expressions of diametrically opposed opinions coming from respected leaders in our ranks—the apparently sincere and earnest beliefs of men reared in the business, whose intelligence and accomplishments cannot be doubted.

I would be flattering myself, indeed, if I thought I could select the correct answers from all this welter of conflicting opinions. I would waste your time if I simply add another plea either for or against the Guffey Act. And I am perhaps over-optimistic in hoping that I can say anything at all worth while toward the solution of this endless argument. But I firmly believe that unless we in the industry try conscientiously to solve our own problems, we cannot expect others to do it very satisfactorily. It is on this basis—of trying to do my bit—that I venture to give you some impressions

## ● *Studied Analysis of Pros and Cons of This Controversial Subject; Suggests a Simpler Form of Act, and Is Greatly Concerned Over Possibility Present Control May Grow Into Rigid Strait Jacket*

By GEORGE B. HARRINGTON  
President  
Chicago, Wilmington & Franklin Coal Co.

gained from a studious effort to review for myself the fundamentals of our position with respect to Federal regulation, and the chief points on which our counsels are divided.

Fortunately, I am addressing a coal-mining audience and do not need to attempt to explain the numerous intricacies of our business, or to indicate the relative importance or correctness of much that can be assumed to be entirely familiar to you. Nor would it be wise to interpret such a broad title as Federal regulation too precisely, for almost everything we do is now in some sense federally regulated. I am thinking of Federal regulation in this talk in the light of its application to our business of the Bituminous Coal Act of 1937, or of some better way of accomplishing the same objectives with less regulation. And, of course, I include the bearing of regulation on our oil, gas and hydro-electric competition.

In the latter regard it may be mentioned that there are at least two items of Federal regulation on which I find practically no division of opinion. We do not believe that coal should be disproportionately taxed, and certainly we cannot subscribe to the fairness of handicapping coal through unequal imposition of regulations or restrictions, or through denial of equal financial aid or subsidy, as compared with competing fuels and electric power.

Notwithstanding that American bituminous coal has blessed these United States with the most generous and cheapest supply of heat and energy in

the world, we render a very competitive service and can expect to hold our leadership only if we successfully adjust ourselves to changing conditions and do not overlook opportunities for improvements, to assure a modern and dependable coal service at the lowest cost consistent with fair wages, reasonable profits and sound business principles. I am not afraid of oil and gas if we do our job as it can be done. But we cannot long continue to sell our product regularly below its cost.

As I see it, the business of supplying coal service at this period falls into three large divisions—the production of coal at the mines, transportation from the mines, and sale and distribution to the actual consumer.

### Great Progress in Production

On production, the industry has kept pace with technological improvements of mining and safety methods, has responded generously to Government suggestions for shorter hours and higher wage rates, has shown great progress in holding down the cost of production in spite of these innovations and reduced output, and in general has given a pretty good account of itself. Though, of course, there will be further improvements, I do not believe there is any immediate opportunity substantially to reduce costs or to improve methods in this division sufficiently to reduce the cost of coal to the consumer to any important extent.

\* Presented to Coal Convention of the American Mining Congress, Cincinnati, Ohio, April 27, 1939.

### Relief From High Transportation Costs Will Be Slow

Transportation from the mines is still chiefly by rail, and rail rates per ton are on the average higher than coal production costs at the mines. Rail rates are too high, both for the good of coal and for the best interests of the railroads. Candid rail executives do not deny this. There is a real opportunity in this division of coal costs for substantial betterment, but unfortunately the railroad industry also has its own serious problems, with a plentiful supply of regulation—and, though we must strive continuously for lower transportation costs, the probabilities are that relief for coal in this division will be slow.

### Best Chances for Savings in Sale and Distribution Division

It is in the third division of costs—those of sale and distribution—including as a cost to the industry the losses and wastes incurred through unwise prices and destructively competitive sales practices, that I believe lies the best and most immediate chance for the coal industry to make the important savings necessary before we can hope to regain our status as an economically successful institution. Through stabilization of marketing practices—the elimination of many actual expenses growing out of badly organized and uncoordinated sales policies, and the stopping of the tremendous losses and wastes of opportunity of blind, unreasoning price competition—there is, in my view, the greatest immediate possibility of getting the coal industry on its feet. We can readily agree on the causes of our tragic failure wisely to merchandise our product, citing, for instance, the miscarriage of the intent of anti-trust laws in preventing essential and proper cooperation, or the defenselessness of our multitudinous and unorganized selling units against many effectively cooperating buyers. Even in our very occasional strong markets we do not always sell wisely and protect the industry from the hurt of short-sighted opportunism.

### Wide Range of Opinion on Coal Control

And this brings us to the pros and cons of Federal regulation of marketing and of price-fixing, and to the merits and demerits of the Bituminous Coal Act of 1937, which is now the law of the land—and what we should

do about it. We have some who think we would be better off, bad as our record is, with no governmental regulation—or, as they sometimes put it, governmental “meddling”—and with a return to the former condition of uncontrolled competition. There are many who believe that some regulation and governmental authority to enforce compliance are essential, and some of this school of thought are willing to try the present act before seeking a new suggested cure. Most of this large group of our people who concede the necessity of various degrees of regulation believe, however, that the present act is impracticable of administration, goes too far towards putting the industry in a strait-jacket and in taking away proper functions or management. They believe the act must be amended and simplified. And there are still others who say they believe that the Guffey Act can and will be made to work, and that in any case so much time and expense already have gone into the effort, and proof one way or the other is so near, that it would be foolish to do other than give the act a friendly and cooperative trial.

### Similar Basic Difficulties Faced Repeatedly in Long Past

Before going into these possible alternatives I would like to advance some thoughts that have come to me during the preliminary study for this talk. The historical “record” of the industry is tremendously voluminous and is intertwined, of course, with the progress of mankind industrially, politically, scientifically and every other way since people have had to be warmed and fed. I am impressed with the evidence that many of the fundamentals of our difficulties are not greatly different from those of other industries, or from the fundamentals of similar problems that have recurred periodically without number back to the beginning of recorded civilization.

Human nature and human reactions seem not to have changed nearly so much as the great technical changes of life might suggest. There are

records of political New Deals and of most of our present alphabetical afflictions running back almost 2,000 years, and there have been economic crises and panaceas, planned economies, attempts at production control and price-fixing periodically ever since. The other day I read a 100-year-old report of a British Parliament Committee on the State of the Coal Trade, containing minutes of a meeting of coal owners in 1833, with their precise rules of marketing procedure, articles of agreement between producers, penalties for slipping, and so

forth, which made me pinch myself and look twice to see if I was not really reading something which had been written in this country during the 1933 days of NRA. During the comparatively short period of history that all of us can remember, our industry has been investigated, fact-finded, governmentally interfered with or aided, nearly wrecked, nearly saved, times no end.



GEORGE B. HARRINGTON

### Rapid Changes in Industry Since War

Coal production in the United States was a relatively uneventful and satisfactory industrial pastime before the Great War. But wartime conditions caused shortages of coal which brought fancy prices, followed by growing pains, Federal maximum prices, and control of distribution. To our family coat of arms were added, as far back as 1923, the mine worker rampant and a Coal Commission in less energetic posture, all in quick succession.

In more recent times our robust health has been taxed in numerous ways during rapid technological and political changes of environment, and has not been helped by many doctors not of our own choosing. It is a tribute to our tenacity of life and resourcefulness that we are still here to have our vitality tested again by a second experimental prescription named after old Dr. Guffey.

My thought on looking back is that our industry—basic we like to call it—is nevertheless only part of an economic whole and that, no matter how good or right we are, we will be



affected by the prosperity or adversity of that whole and by changing external factors beyond our power greatly to alter. Also, that in larger measure we are constituted of or dealing with a great many human beings, each presumably equipped with a mine-run assortment of human nature and human wisdom and human idiosyncracies, living in a country of boasted freedom to speak one's piece when so moved, and reputedly governed by the will of the majority.

#### **Human and Political Factors Require Careful Evaluation**

I would like to stress these human equation and political factors of our problem. Many of us in this convention are engineers, trained to calculate the strength and properties of our materials. It would not be good engineering to fail to allow for wide factors of safety or of error in dealing with as nonperfect material as human nature, particularly with human nature taken collectively and reacting erratically under various forms of political inspiration. Nor, in the view of many, many examples to the contrary, would it be sound to assume that collective thought and action today can be much more brilliant or infallible than in the past, or suddenly free from retarding forces of self-interest and misunderstanding, or with no longer need for a reinforcement of good intentions by actual authority or a stiffening of resolve by more than voluntary policing power.

Another factor which I think it is fair to mention as relatively free from controversy is that there are just as much integrity, intelligence, initiative and other high qualifications among men of the coal industry as in any other comparable walk of life, and there is no reason to impose more regulation on this industry than is absolutely needed to protect against injuries that the nature of the industry itself makes self-unpreventable, or than it is proper to impose as a safeguard against misuse of needed relaxation of other regulations—such as the anti-trust provisions.

Also, it is natural and desirable for the industry to function in its requirements for collective action as nearly as may be through its own industry and trade organizations, both regional and national, and the industry has not been delinquent in establishing such organizations, nor have the latter been ineffective. Nationally the American Mining Congress and the National

Coal Association have been of great help to the industry in their respective spheres, being limited from even more service only by the distressed financial conditions or by the inherent difficulties of the industry to cooperate on collective policies. Regionally there are many operators' associations, traffic, safety, credit and other joint activities, which function beyond notable criticism. If way can be found to permit proper functioning of marketing associations without constant fear of legal prosecution, there is little reason to doubt that great improvement toward stabilizing market procedure and conditions will not be worked out satisfactorily within the industry itself.

#### **Costly Delay in Effective Price Control**

At the present time the Coal Commission unquestionably is making a conscientious effort to arrive at price schedules and marketing rules that comply with the provisions of the Coal Act and that will stand up legally and accomplish the objective of yielding to the industry at least its average cost. The act was signed by the President two years ago yesterday, and I have heard no convincing evidence that prices can be expected to become effective for at least four or five months more. There still remains serious question whether the price schedules will weather legal attacks or be of practical value. And through all of this waiting period the price structure of the industry has been chaotic, with a limitation of contracts to no longer than 30 days from date and a condition which some one has expressed as that of "turning the coal industry into a gigantic auction room." Realization has continued to sink and losses to mount. It is little wonder that criticism and dissatisfaction have grown to more than audible proportions.

#### **Move to Amend Act a Natural Consequence**

Opponents of the act have formed an active committee for amendment which has gained wide support among the operators — those representing about 145,000,000 tons of the country's commercial tonnage, I believe, have signified their support. Growing out of this activity, a bill to amend the act was introduced on March 20 by Representative Allen, of Pennsylvania. The Allen bill would eliminate all price-fixing provisions and all

taxes and assessments for administrative costs under the Guffey Act, would retain a three-man Coal Commission, and would legalize to a certain extent under supervision of this Commission voluntary marketing agencies among producers. The amendment bill cites as unfair trade practices certain marketing methods heretofore prohibited by the codes. The United Mine Workers have declined to join the committee for amendment, and other operators have defended the act and have replied to the arguments of the committee.

Through these circumstances we have at hand a pretty complete, up-to-date exposition of the "merits and demerits of Federal regulation of the coal industry." If any of you crave more of the gory details than I can give you in this short talk, I can and gladly will refer to you an abundance of them. I will attempt, however, to summarize briefly for you some of the principal points on which there is the most important divergence of opinion.

#### **Some Regulation Desirable**

With the exception of a comparatively few "rugged individualists," the record would seem to show a preponderance of belief that some governmental regulation is desirable. I have seen only a few scattered expressions favoring state control, and the great weight of evidence points to the necessity for Federal regulation, if any, of those activities having to do with marketing and interstate commerce.

As to the Guffey Act, proponents feel that its form "reflects majority opinion within the industry as to the best approach to the problem at this time" and that it was arrived at on the basis of more than 20 years' study of the coal problem, including 19 investigations or hearings by Congress or especially created commissions with respect to conditions in the industry. It is pointed out that a coal regulation measure of some sort has been presented to practically every Congress since the early twenties and that the Guffey bill contains the cumulative wisdom and experience of this whole period. The view of the amendment committee is that "a deal was made between the United Mine Workers, and supported by some operators, and the United States Government in which the Government, at a charge of 1 cent per ton, assumed responsibility of running our business, to the extent that coal would not be sold at less than cost and that the increase in wages of April, 1937, would be



passed on to the public." It is also claimed that the bill is unworkable, and, because of its "regimentation" features, is un-American.

I happen to know a good deal about the early history of this law, because I was one of a small committee which spent several months of hard work trying to agree upon desirable features and wording of a bill to accomplish the same objectives, before our total inability to agree left our unfinished symphony in the laps of the Mine Workers, from where it eventually found its way to Mr. Guffey, after having been rewritten and completed by the Mine Workers and numerous voluntary helpers from the ranks of the operators and elsewhere. It is only fair to say that the Mine Workers relied upon the wisdom and knowledge of the operators with respect to price-fixing and marketing provisions, and that if the latter are poorly drawn it should not be charged against the miners.

#### Extreme Complexity of Price Control Provisions

As to workability, even the proponents admit that the price-control provisions are extremely complicated and difficult of administration. The second annual report of the Coal Commission, which is worth reading, is replete with awesome figures of the tremendous amount of statistical work required to even arrive at a schedule of prices. I quote at random a few of these figures to give you the idea:

"The total number of cost reports accepted and tabulated by the statistical bureau was over 90,000. . . . The Commission has collected reports from 7,000 code members to show the quality and sizes obtained at each mine, the seam operated and available chemical analyses. . . . To prepare the work of coordination required constant reference to freight rates . . . the completed files will contain in excess of 1,000,000 individual rates. . . . The total number of these documents of sale to be received, checked against the price schedule, and analyzed runs between 4,000,000 and 5,000,000 in a year."

In addition to this great complexity, the opponents cite that if and when the Commission arrives at coordinated prices under the provisions of the act the latter will not mean anything because a failure to include complete water transportation and truck rates will throw the system out of balance, on top of which failure to be able to establish prices for coal from the docks, and to control and police prices on down to the consumer, will make the prices further ineffective.

#### Delay Only to Be Expected

Progress of the Commission has been slow, and the actual cost to the industry of administration has been heavy. I think that slowness by this kind of a public administration, particularly a brand new one, handicapped by many legal uncertainties and lack of precedents, was to be expected, and that it should be put down as one of the so-called demerits of the regulatory process. The Interstate Commerce Commission, with all of its years of experience, is not exactly lightning.

My information is that the Commission is really getting down to brass tacks, that it has overcome many of its earlier weaknesses of a political nature, and that many operators who have been in contact with the proceedings and had about given up hope are now tending toward optimism that maybe the industry will receive some benefit after all. Personally, I have been skeptical about the practicability of this particular price-fixing formula, but having failed in my own above-mentioned effort to write a better scheme, I hesitate to begin throwing bricks before there is undeniable provocation.

#### Change Too Extreme for One Step

My way of tackling a complicated and doubtful task such as this one would be to start on some simpler and more flexible basis and gradually work up to the all-embracing whole. But the law prescribed a completed job at one jump, with prices to be adjusted to and coordinated with about every factor that any of the many authors could think of, sometimes specifying quite conflicting standards. Some students think this is perhaps the greatest weakness of the law, particularly in its administration. It is obviously an effort to raise prices and at the same time to freeze or allocate everybody's business where it is now. On the other hand, I think it can be fairly said that the tendency of each individual operator as he approaches the coordination proceedings will be to want to hold the business he has, at a higher price, of course, and at the same time to try to put himself into position to get at least part of some one else's business.

#### Marketing Agencies Another Live Item

Another very live item in this problem is that of marketing agencies. The proponents of the Guffey Act feel that marketing agencies have been

and will of necessity be ineffective, unless provided with authority to enforce, or so-called "teeth." They say that without some such power of enforcement as is provided by the existing law it is impossible to secure adequately complete membership and policing of decisions, or to prevent temptation of a nonmember or temporarily resigned member to wreck the whole price schedule by taking unfair advantage of his independence.

The contrary view is that the Appalachian decision gives the necessary freedom to producers in a given region to act collectively, that the first agencies established after the Appalachian decision were proceeding satisfactorily and would by now be doing an acceptable job but for intervention of the NRA and the two subsequent Guffey Acts. But it should be borne in mind that no court construing the Sherman law has ever held that competitors can agree by enforceable contract to prevent destructive price competition. This matter of marketing agencies is a very important one on which to be right, and on this decision, I think, depends very largely one's choice as between the new Allen bill and some stronger method of regulation.

#### Amend Act Without Trial?

As to amendment of the Guffey bill, it would seem to me inevitable that there will have to be amendments. The question on this point for the time being would seem to be whether, having gone to so much expense and taken so much time, we will let the Guffey formula have a chance to see how effective it can be and what amendments are indicated by experience. Or shall we amend it without a trial for some other plan equally untried? The Allen bill is something more than simple amendment of the Guffey Act—it goes closer to outright repeal. In fact, there is evidence that important support of the Allen amendments may be based more on expediency than conviction, on the theory that it is politically easier at this time to kill the Guffey Act by sweeping amendment than by undisguised repeal.

Another point provoking much conversation is a possible comparison of Federal regulation of coal with the Interstate Commerce Commission regulation of the railroads—whether, if comparable, the I. C. C. constitutes a pro or con argument for the Coal Act. I have sought authoritative opinion on this question only to be

convinced that it is indeed a question and itself a large one. The Interstate Commerce Act is an outstanding case of existing Federal regulation of industry and price-fixing, but an example comprising too many "merits and demerits" of its own to be tackled here. There are many similarities of the two regulations, and experiences of the one should help study of the other. My impression is that high railroad opinion today leans toward belief that the "merits" undoubtedly outweigh the "demerits," from a railroad management viewpoint, but railroad men are quick to point out difficulties which have grown up in the development of railroad regulation which may eventually become equally troublesome in the working out of a similar regulation of coal.

Similarly, the experiences and lessons of the British Coal Act are a subject in themselves. Though I have read and talked much about coal control in Britain and other countries, I have no first-hand knowledge, and hesitate to inject even my impressions into this paper.

In preparation for these remarks I have sought earnestly to keep an open mind and to divorce my personal interests or prejudices from this presentation. But you must allow a factor of error for human frailty. I have been the operating head of my particular coal company for almost 25 years, and so have been an actual and often an active participant in the evolution of our industry during this eventful period. It would be expecting much to say that I have not accumulated some prejudices.

### Industrial Market Survey

Secretary of Commerce Harry L. Hopkins has announced a new business service would be available for distribution this summer in the form of an industrial market survey covering vital information of interest to business men in every county of the United States.

The study, known as the Industrial Market Data Handbook, was originally requested of the Department of Commerce by the National Industrial Advertisers Association. The 1,000-page manuscript is expected to be off the presses by July 1.

The handbook is the first marketing survey of American industry that has been presented in this form. It contains complete figures on industrial production, employment, value of products, cost of material for fuel and power for the more than 3,000 counties in the United States, similar data for every city of more than 10,000 population, and like information for each of 280 industries on a

national rather than a county basis. The study also contains additional information on the county location of 169,111 manufacturing plants and the industries in which they are operating. An important feature of the handbook is a county location table for each of the 23,000 mines in the country and summary data on industrial production and employment in the mines by counties. This is the first time such information has ever been available to American businessmen and the first time since 1929 that figures on the location of industrial plants have been so completely compiled. The handbook was prepared as a cooperative study by the Bureau of Foreign and Domestic Commerce and the Bureau of the Census, Department of Commerce, and the Bureau of Mines, Department of the Interior. Six tables in the handbook are included on the methods of distribution of industrial goods for industry as a

### Own Position Outlined

I had hoped to be able to close these remarks without much, if any, expression of my own personal views. But I would offend my plea for a contribution of best thought by all hands if I, myself, am not frank. I will try, therefore, to express briefly my own position.

I have for long believed that the industry could best work out its own destinies largely under its own initiative, working chiefly on a district or regional basis but tied together on national lines—to the minimum degree consistent with national and overlapping problems. On prices and market policy, I have liked the marketing agency method, but I have felt that

this method is futile without more freedom from anti-trust restrictions and without some positive enforcement power. To obtain these latter essentials, I have assumed it reasonable and necessary to be willing to give up some measure of self-determination and to vest a reasonable approval or veto power in a Federal authority.

There is a whole lot in the Guffey Act that I do not like—most particularly the price-fixing formula. It has not yet been demonstrated that the plan will work, but on the other hand it has not been demonstrated, to my mind, that it will *not* work.

The fear that a Guffey Act type of control may grow into an all-embracing governmental operation, or strait-jacket—stifling self-management and initiative—concerns me greatly. I would much prefer a simpler form of act, but only if the latter can be equipped with so-called teeth.

The political picture for the next two years is as familiar to you as it is to me, but it must weigh heavily in our deliberations.

It would seem to be a practical position to seek to utilize the present situation to build up our marketing agencies and other self-governing organizations as solidly as we can under the Guffey Act, and to cooperate with the Commission and among ourselves to give a convincing trial to the price-fixing formula on which so much time and money has been expended. Then we will be in the best position, I believe, to put our united effort and influence behind such amendments or repeals as experience indicates.

whole and for certain selected major industries in particular. These tables will serve primarily as a guide to marketing men in determining the best available channels of distribution for their products.

The industrial market survey is of value especially to manufacturers, industrial marketing men, sales executives, financial companies, purchasing agents, advertising agencies, economists and other research groups in the nation's universities and colleges.

The information contained can be used for the establishment or re-appraisal of sales territories, setting up of sales and production quotas, making market analyses and planning of sales and advertising campaigns.

Firms and individuals desiring to be informed when the Industrial Market Data Handbook is available for distribution should notify the Bureau of Foreign and Domestic Commerce at Washington, D. C., or any one of its 33 district offices. The Bureau will inform each applicant promptly upon publication.



Crushing plant, mill  
and power plant  
at Lepanto Consolidated

# Mining Copper at Lepanto Consolidated in the Philippines

**T**HE only milling plant in the Philippines which is producing a concentrate valuable principally for its copper content is operated by the Lepanto Consolidated Mining Company at Mankayan, subprovince of Benguet, Mountain Province, approximately 100 kilometers north of the famous Baguio gold-mining district (see Fig. 1).

Since ancient times copper has been mined from the prominent bluff on the side of Mount Laaban by Igorots, the head-hunting natives of this region, and smelted by them wherever wood was available. Adventurous Chinese, several hundred years ago, taught them their crude methods of smelting.

Word of the copper deposit eventually reached the Spanish authorities, who were in control of the island of Luzon, and a report in 1833 as a result of an expedition by Colonel Galvey attracted wide attention. In 1850 Don Antonio Hernandez, a Spanish Government engineer, accompanied a military expedition to Mankayan, and made an extensive examination and report on the deposit.

This led to the formation of the

## ● Only Philippine Property Producing Concentrate With Copper Its Main Value Now Milling 13,000 Tons Per Month

By FRED E. JOHNSON  
General Superintendent  
Lepanto Consolidated Mining Co.

Cantabro-Filipino company, and in March, 1865, an agreement was signed with the Igorots for the exploitation of the deposit, and work was started. Don Jose Maria Santos, a very able engineer loaned by the Spanish Government, was in charge of mining and smelting operations. As a result of overwork and the hardships of living in this wild region, he later died and was buried near the mine by the Igorots. Subsequently, operations languished and work was finally suspended in 1875. It is said that the Cantabro-Filipino produced approximately 2,500,000 lb. of copper up to 1874.

After operations ceased, mining was continued in the primitive fashion by Igorots and Chinese until some time

after the American occupation of the Islands. It was then that the attention of many individuals was again attracted to Mankayan, with the staking of claims, and some exploration work, but no further exploitation was actually done until the present operation was started.

### Lepanto Developments Date From 1936

The Lepanto Consolidated Mining Company was organized in September, 1936, under the management of Nielson & Company, Inc., Manila, and construction of a modern plant was started on January 1, 1937. The enterprise involved a large expenditure for roads to make the property acces-



sible, and for the buildings required by a completely modern camp to house the American staff, as well as the Filipino employes and laborers.

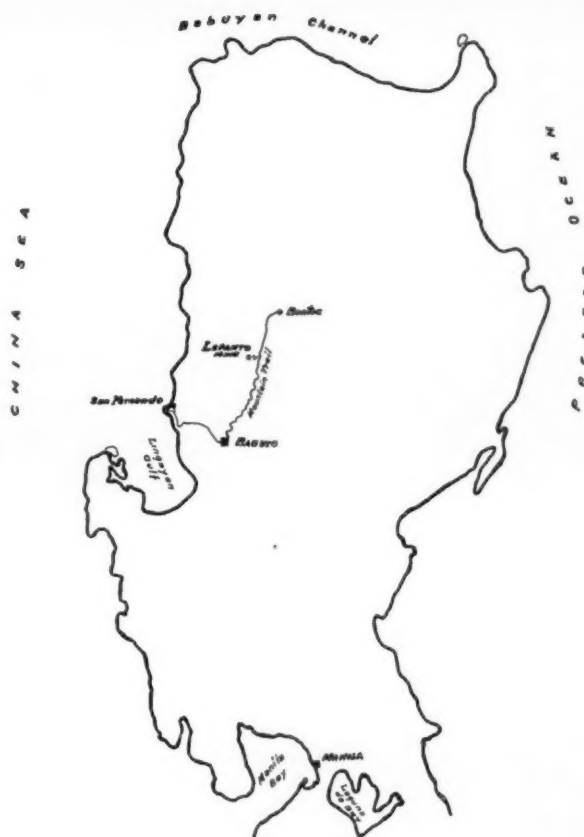
On October 1, 1937, milling was started, the first ore being derived from the extensive low-grade dump left from Spanish operations.

#### Geology of the Deposit

Geologically, the copper deposit of Lepanto occurs as an irregular group of veins and lenses within an extensive silicified zone, bordered by andesite, and capped by a highly altered extrusive breccia. The length of the silicified zone, as well as the length of the ore body, is unknown; the siliceous area is several hundred feet wide, and the ore being mined at the present time is confined to its footwall side. Later prospecting may reveal commercial ore bodies at the hanging wall side of the zone as well. Values occur principally as enargite, with smaller quantities of chalcopyrite. Some covellite has been found as a constituent of stope fill left by the Spaniards, but none of this mineral has as yet been discovered in place. Large quantities of pyrite occur with the ore throughout the silica, and, in many places, in the barren andesite, adjoining the silica. This mineral is extremely common throughout the Mountain Province of Luzon.

The deposit is undoubtedly of primary origin and the depth to which it extends is yet to be revealed by exploration work. From the lowest level on which exploration has been done to

Fig. 1  
Sketch  
Map of  
Northern  
Luzon,  
showing  
location  
of Lepanto  
Mine and  
concentrate  
shipping  
point



the top of the known ore is a vertical distance of approximately 350 ft. The width of the commercial orebody varies from 5 to 80 ft., and the length of the commercially mineralized zone

is over 1,000 ft. on the one level which is completely explored. The top of the orebody is at an elevation of approximately 3,590 ft. (see Fig. 2).

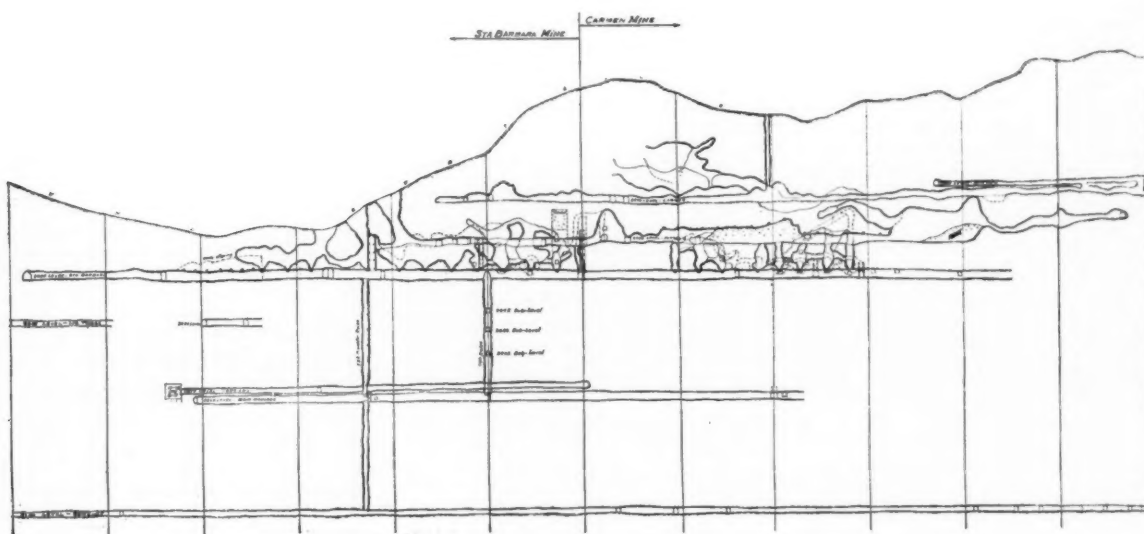


Fig. 2. Longitudinal section through Lepanto ore body

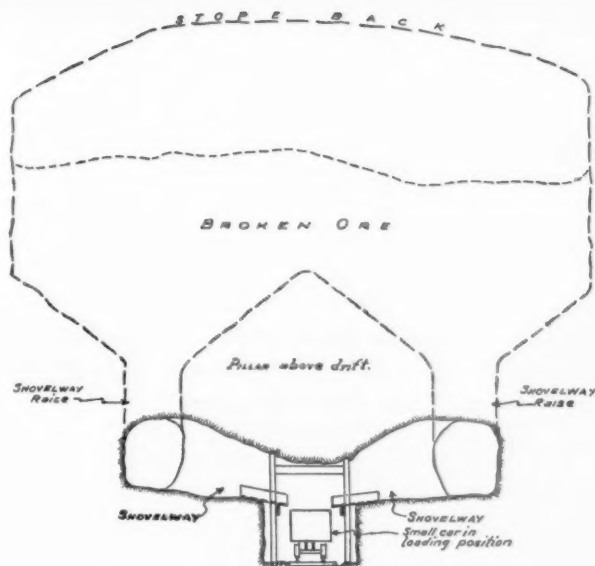


Fig.3  
Sketch  
showing  
details  
of mining  
method,  
with  
shovelways  
on opposite  
sides of  
drift, and  
shrinkage  
stope above

### Mining by Surface and Shrinkage Stope Methods

Original plans called for extensive surface mining, but a modification of this was soon found necessary, so that at the present time less than 40 percent of the mine tonnage is derived from surface benching and glory holes.

In January 1938 underground development was started, and since then a successful shrinkage system of mining has been worked out. Panels with their greatest horizontal dimension at right angles to the strike of the ore are mined to the capping, and the pillars caved later. Stopping has been complicated by the presence of extensive Spanish workings, many of which were filled and unmapped, so it has been impossible to predict when a new panel would encounter an old Spanish stope, with disconcerting results if the old workings tended to cave. The old fill is of present mill grade, however, so the difficulties have been purely mechanical, and surmountable.

Chutes for drawing stopes were soon supplanted by shovelways (see Fig. 3), as local labor has a special talent for blasting out timber, and much of the ore breaks large in the stopes. Each shovelway is a small chamber with its bottom at the elevation of the top of a car, opening to a drift at the front, and connecting with the stope at the rear by two inclined finger raises. A considerable saving in secondary blasting and timber repairs combines with greater loading efficiency as the result of their use.

Ore from the present principal mining level is trammed underground in small mine cars and passed through a transfer raise to the main haulageway, 120 ft. below. Ore from the surface bench is dumped into a channel and scraped down a steep incline into a catch bin below by an ordinary mine scraper, operated by a 10-hp. double-drum hoist. From the mine it is hauled over a 1,400-ft. trackline along the steep mountainside in Granby-type 45-cu.-ft. cars, pulled by a 5-ton Diesel locomotive.

### Crushing Plant

At the crushing plant, run-of-mine ore is delivered to a bin capable of holding approximately 10 cars of ore, from which the rock is fed by gravity to a 24-in. by 36-in. Blake-type crusher. It falls onto a 30-in. conveyor belt, 100 ft. long, and passes through a gallery where as much waste

as possible is sorted out by Igorot women. A 37-in. suspended magnet removes tramp iron at the end of the belt, and the ore is discharged onto a 3-ft. by 6-ft. vibrating screen, the undersize from which by-passes, whereas the oversize (plus  $\frac{3}{8}$  in.) passes through a 4-ft. Symons cone crusher, and is discharged, meeting the undersize, onto an 18-in. descending conveyor belt. This conveyor, which bridges the gap between the crushing plant and the mill, is inclined at an angle of 25 degrees, and is 235 ft. long, discharging into a 1,200-ton ore bin.

### Mill Flow Sheet Described

The ore, which is minus  $\frac{1}{2}$  in. to  $\frac{3}{8}$  in., is fed from the bin to the ball mill by 20-in. variable-speed conveyor belts. The milling plant consists of two 8-ft. by 6-ft. Marcy ball mills, in closed circuit with two 6-ft. by 21-ft. Denver duplex classifiers. The ball mills were purchased from Inspiration, and have considerably greater capacity than the classifiers, which are the bottle-neck limiting capacity at the present time. The pulp from the classifiers passes to a bank of six 56-in. Fagergren flotation cells, and the froth from these is pumped to two 56-in. Fagergren cells used as primary cleaners. The final concentrate is derived from four No. 18 Denver Sub "A" cells, which reclean the product of the primary cleaners and passes to two thickening and filtering units, each consisting of an 8-ft. by 16-ft. Denver thickener and a 5 ft. 4 in. by 8 ft. Oliver filter. Only one dewatering unit is in use at a given time. Thickened and filtered concentrate is elevated by a conveyor to the drier building, where it is passed over a plate heated by exhaust from the Diesel plant, and dropped into a bin. Tail-

(Continued on page 39)

Concentrate  
storage  
bin of  
Lepanto  
at San  
Fernando,  
the shipping  
point



# First-Aid Training and Accident Prevention at the Bradford Mine\*

THE Federal Bureau of Mines has been conducting, sponsoring and assisting with first-aid training in the mining, petroleum and allied industries since its organization in 1910.

The standard first-aid course was formulated and assembled primarily to train men to take care of injuries suffered by industrial workers between the time of the accident and the time the services of a physician could be obtained, and secondarily to prevent accidents.

With greater accessibility of hospitals, availability of physicians and decrease in the frequency of accidents, the advantages of first-aid training have been reversed, and now its primary value is in the prevention of accidents, with care of accidents when they do occur of secondary importance.

The Bureau of Mines trains or co-operates in the training of approximately 100,000 persons yearly; it is estimated that as a result of this training 200 lives are saved annually by artificial respiration alone.

The results in the prevention of accidents can be estimated only roughly from comparative accident figures over a period of years.

## Scope

An attempt will be made in this report to show the value of first-aid training in preventing accidents in one of six mines or groups of mines operated by a company producing 1,500,000 tons of coal with 4,250,000 man-hours of exposure annually.

## Safety-Training Activities

The Alabama By-Products Corporation has been active in accident prevention at all of its mines since its organization. First-aid training is conducted on a cooperative basis annually at each mine where a number of employees desire it. Vocational

## ● *Enviably Safety Record at This Alabama Byproducts Company Property Attributed in Considerable Measure to 100 Percent First-Aid Training*

By FRANK E. CASH

Supervising Engineer  
Bureau of Mines Safety Station  
Birmingham, Ala.

training courses are conducted for men who desire to qualify for state mine foremen's certificates, accident-prevention courses are conducted every two years for all supervisors and key men, and a small number of well-trained mine rescue men are available at each mine.

Each year 1,200 to 1,800 of a total of 2,500 employees take the Bureau of Mines first-aid training course.

The accident - prevention program, of which first-aid training is only one phase, has resulted in gradual improvement in accident experience when all mines are considered collectively.

In 1936 the accident frequency rate for all mines of the Alabama By-Products Corporation was 62.87, and in 1937 it was 47.92; while the severity rate in 1936 was 12.39, and in 1937, 5.18.

## 100 Per Cent First-Aid Training

The Bureau of Mines recommends that all employees working in and around mines be trained or retrained annually in first aid.

Although some first-aid training has been conducted at most of this company's mines annually, the company and employees jointly have made it possible since 1930 for one mine to be trained on a 100 percent basis once, another twice, another three times, etc. The Bradford mine has been trained in first aid on a 100 percent basis eight times during the past eight years.

At the Bradford mine 26 foremen and key men have qualified for pro-

visional Bureau of Mines instructors' certificates and renewals, and have assisted with this training one or more times; three of them have conducted classes six or more of the eight years, during which time all employees have been trained in first aid.

## Operating Practices at Bradford Mine

A description of existing natural conditions and operating practices is essential to a comprehensive picture of the safety work at the mines of this company.

The Bradford mine, developed by a slope in the Black Creek coal bed, has been in operation for 22 years. During this time, approximately 2,500,000 tons of coal have been mined, including 260,500 tons in 1937 alone.

The coal is an excellent coking coal, ranging in thickness from 1 to 36 in. The thicker coal (20 to 36 in.) lies in lenses or pockets of irregular shape, size, and location. The shape of these lenses is generally oblong, with the long axis parallel to the pitch; they range from 50 to 500 ft. in width and from 500 to 1,000 ft. in length. There is no uniformity of occurrence of these lenses, but they are encountered 50 to 500 ft. apart. The average thickness of the coal between lenses is 12 in., but frequently it is less than 1 in., and the average thickness of all the coal produced from the mine is 22 in.

The mine is laid out and developed in panels on the room-and-pillar system. Panel entries are turned at

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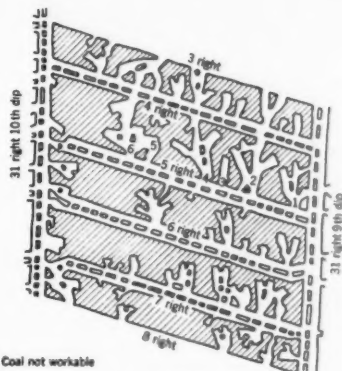
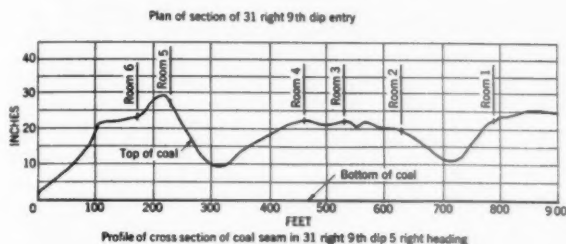


Fig. 1. Plan and profile of 31 right 9th dip 5 right heading of Bradford mine



Profile of cross section of coal seam in 31 right 9th dip 5 right heading

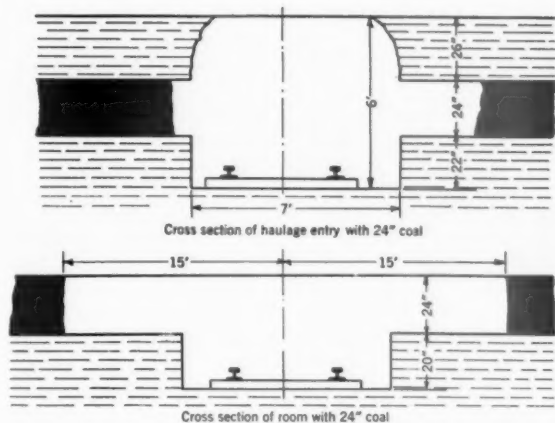


Fig. 2. Cross section of haulage entry and room

1,200-ft. intervals and room entries on 225-ft. centers. This system is followed regardless of the thickness of the coal. Rooms are turned and driven 25 to 30 ft. wide where and when the thickness of the entry coal justifies.

The regular development of entries and air courses and the irregular thickness of coal that has resulted in irregular room development are shown by Figure 1.

The roof is slate, with slip planes irregular as to distance and direction, and the floor is relatively soft fireclay.

The printed rules pertaining to timbering require the timbers to be set with one and not more than two cap

boards or headers, not over 5 ft. apart (closer if necessary) in rooms, and on haulage not closer than 24 in. to the rail; in pillar work, timbers are required to be set not over 4 ft. apart, with a cap board or header at least 2

in. thick and 24 in. long; rolls and pots must be taken down or timbered and any place that posts do not suffice cross collars must be used. Safety posts are set between the rails at all working faces.

A 10-ft. pillar is left between heading and air course, and 72 in. head-room is obtained by brushing top and lifting bottom. Only enough rock is taken to provide a haulageway 6 ft. high and 7 ft. wide. In entries this results in taking 4 ft. of rock for 2 ft. of coal. Clearance for haulageways in rooms and air courses is made by shooting bottom only, which provides for a haulageway 6 ft. wide and 42 in. high. The brushing in all working places is kept within 6 ft. of the working face. The rock is gobbed as far as possible, and the remainder (approximately  $\frac{3}{4}$  ton of rock for each ton of coal) has to be hauled to the surface. Details in connection with the coal and rock handled are shown in Figure 2.

The mine is rated as gassy by the Alabama Inspection Department. The coal is cut with low-vein shortwall mining machines with  $7\frac{1}{2}$ -ft. cutter bars, and blasted with permissible explosives.

Haulage is by  $1\frac{1}{2}$  to 2-ton cars, trammed by hand from rooms, hauled by electric trolley locomotives to the bottom of the slope, and hoisted to the tippie by rope from a surface hoist. The average haul is approximately 3 miles.

The mine employs 450 to 550 men and produces 1,400 tons of coal daily. All loading is by hand.

#### Safety Experience and Achievements

The accident experience by years, 1930 through 1937, is given in Table 1.

The 100 percent cooperative first-aid training by dates, with number of men trained, is given in Table 2.

Semiannual accident reports by the safety department give a list of foremen, number of men supervised, and length of time for those who have

TABLE 1.—ACCIDENT EXPERIENCE OF BRADFORD MINE

Year	1930	1931	1932	1933	1934	1935	1936	1937
Tons coal mined.	213,701	145,278	219,015	260,438	768,013	448,189	773,308	900,027
Man-hrs. exposure	63	19	24	33	29	19	31	3
Accidents	3	0	1	1	1	0	1	0
Days lost *	120.00	37.00	40.20	40.50	37.70	38.90	40.00	3.33
Fatalities †	38.00	3.70	17.60	9.70	9.60	1.30	12.97	0.11
Severity								

\* The scale of time losses for weighing fatalities and injuries is that used by the Bureau of Mines in the awards of the National Safety Competition.

† Included in Accidents.

TABLE 2.—100 PERCENT FIRST-AID TRAINING, BRADFORD MINE

Date	Men trained
1/30	325
10/31	444
12/32	448
12/33	506
11/34	514
4/36	524
10/37	549
9/38	540

worked men more than six months without a lost-time accident. This list, as of December 31, 1937, is given in Table 3.

TABLE 3.—LIST OF FOREMEN AND NUMBER OF MEN SUPERVISED WHO HAVE WORKED MORE THAN SIX MONTHS WITHOUT LOST-TIME ACCIDENT

Department foreman	No. of men	Time since last lost-time accident
1 Tipple	15	5 yrs. 8 mos.
1 Carpenter	8	3 yrs. 3 mos.
1 Tract	10	3 yrs 1 mo.
1 Section	32	2 yrs. 7 mos.
do.	89	1 yr. 3 mos.
1 Electrical	15	1 yr. 1 mo.
1 Section	64	1 year
do.	59	do.
do.	75	10 months
do.	32	9 months
1 Mine	38	do.

#### National Recognition

The reduction and prevention of accidents in Bradford mine have re-

sulted in national recognition to individual employes as well as to the company and mine.

In 1936 the Joseph A. Holmes Safety Association made the following certificate awards:

Michael Bishop Ford, Bradford mine, Alabama By-Products Corp., Dixiana, Ala., for having acted as tippie foreman and supervised without an accident an average force of 15 men from August 10, 1932, to January 1, 1936, in handling 660,058 tons of coal and approximately 371,217 tons of rock with an exposure of 98,825 man-hours.

This experience is intact up to date.

In 1937 the following individual certificate award was made:

Albert Long, Alabama By-Products Corp., Dixiana, Ala., for the skill with which he saved his own life by application of first-aid methods in controlling bleeding when his leg was cut off and he was alone for an hour and a half in Bradford mine, on October 9, 1936.

In 1938 in the National Safety Competition, Bradford mine was awarded a certificate of honorable mention for its 1937 accident experience, and the Holmes Association gave the following certificate award:

Bradford mine, Alabama By-Products Corporation, Dixiana, Ala., for operating with only 3 lost-time accidents during the year 1937, employing 550 men (488 underground) working 900,027 man-hours, handling 260,438 tons of coal and 143,240 tons of rock from a coal bed averaging 22 inches in height; and for operating 644,215 man-hours without a lost-time accident from

March 18, 1937, to December 31, 1937 (and continuing).

#### Conclusions

During the 8-year period, 1930 through 1937, the Bradford mine has been virtually under the same supervision in all phases of operation, including safety.

With the existing natural conditions, especially as they pertain to coal thickness and roof conditions, the progress in accident prevention is outstanding and worthy of national recognition and commendation.

Operating practices and supervision without training would not have had such favorable results. Training of various types, including 100-percent first-aid training reaching every employe, has played an important part in these achievements, and both management and employes are to be commended for the prevention of accidents, and saving of lives in and around the Bradford mine.

This report was made possible through the cooperation of B. E. Patterson, superintendent, Bradford mine; O. V. Simpson, safety director, and W. C. Chase, general superintendent, Alabama By-Products Corporation, and the writer wishes to acknowledge their assistance with thanks.

#### Reclamation of Stripped Coal Land

The results of an investigation of the reclaiming of the surface of stripped coal lands, conducted by the Bureau of Mines, Department of the Interior, have been published in a report recently issued. Considerable tonnages of coal are mined in various states by stripping methods, and an important economic phase of this method is the serious disturbance to the terrain and the consequent loss of land for the production of crops or forests.

Erosion, weathering and natural vegetation usually will make stripped lands useful for grazing, recreational areas, forest reserves, and, in some places, agriculture. Years are required to reclaim the land by these means, and the financial returns to the owners or states from these lands are problematical. It appears that in some areas planned reforestation can be made a profitable investment. Where the soil is not suitable for tree planting, the land owners should cooperate with the agricultural departments of the Federal and state gov-

ernments to determine the crops best suited to the land. It is believed grazing could be encouraged by the growing of certain grasses and legumes.

The growing of orchids and vineyards has been successful in certain areas, but since these crops require constant care and attention, private individuals should be encouraged to acquire tracts for this purpose.

A carefully prepared plan whereby certain quick-growing trees are planted, together with those requiring years to mature, should return the original cost in the early years of the plan, and a profitable return on the investment in later years.

Strip mining is particularly adapted to areas where the coal beds outcrop or lie at comparatively shallow depths. Under these conditions, the strata above the beds usually have little physical strength, which makes underground mining dangerous and costly. The areas of strippable coal in any state usually are only a small percentage of the whole area of the state, and these areas are generally irregular and narrow, few exceeding

a width of a half mile. The value of the original surface of these areas is a small fraction of the value of the underlying coal. After stripping, the surface can be reclaimed and in many cases the returns from this reclaimed land will equal, if not exceed, the value of the surface before stripping.

Strip mining is a factor in the conservation of coal deposits, because the maximum amount of coal from a given area is obtained by this method. This system of mining is a means of preventing waste of a natural resource that cannot be replaced.

It is recommended that where the soil is suitable for reforestation, an area of spoil piles should be planted each year equal to that stripped in the preceding year. If 100 acres of land is turned over, 100 acres of land should be planted. The cost of this type of program is not prohibitive when figured on the basis of cost-per-ton of coal mined.

Copies of this paper, Report of Investigations 3440, "Reclamation of Stripped Coal Land," by Albert L. Toenges, may be obtained from the Bureau of Mines, Washington, D. C.

# Fundamental Factors Influencing Blasting Practices with Mechanization

MUCH has been written and said on many phases of mechanization, particularly those involving capital outlay. Less has been said about the advisability of reconsidering blasting practices when changes in mining methods are contemplated.

The determination of the most efficient blasting practice for any given mine depends upon many factors such as tippie equipment, transportation facilities, type of loading machines and market demand for certain sizes of coal. When these factors, and many others are known, one has a background with which to approach the problem of face preparation and blasting.

Naturally, each case is different. No standard rules can be set up. But certain basic principles are present that can serve as a basis for reconsideration of present practices.

**Position of drill holes.**—In general, the position of drill holes is largely determined by the nature of the coal seam, and it is not usually necessary or desirable to make drastic changes when a mine is mechanized.

**Number of drill holes.**—When mechanical loaders have to dig into the coal, they are less efficient and are subject to greater depreciation. Moreover, the coal suffers additional degradation. Therefore, the number of holes is generally increased, *with no increase in the amount of explosive*, to roll the coal out from the face. Short snubbing holes are often used for this purpose. An additional advantage of the extra holes is that there is less likely to be large blocks that are difficult to load.

**Diameter of drill holes.**—The examination of blasting practices induced by contemplated mechanization has led to a more thorough consideration of bore hole diameters. The tendency is to use larger bore holes to get a cushioning effect. This reduces fines around the bore hole and thus gives a higher percentage of desirable lump. Holes are being drilled from  $\frac{3}{4}$  inch to  $1\frac{1}{2}$  inch larger than the explosive. In thin seams, where unbalanced shots

are often found, larger holes are particularly valuable, as the cushioning effect tends to prevent the shot breaking down through the back of the cut.

Miners sometimes slit the cartridges and tamp them so they conform to the drill hole. This has a tendency to increase the velocity of the explosive due to more positive confinement as well as the increased diameter of the charge. (Most grades of explosives show small velocity increases when the diameter is increased.) From the safety standpoint, also, it is considered better to buy correct diameter cartridges and use the explosive intact.

**Angle of the drill hole.**—The angle at which holes near the roof are drilled has been found to have a definite effect on roof conditions. In one case, where holes were angled sharply upward and the roof was of soft or laminated type rock, actual "pot-holes" were found in the badly shaken roof. Flat holes, plus a slower explosive left the roof undisturbed.

Roof condition is extremely important in mechanized mining, because of the careful time synchronization necessary. Extra time spent putting in additional timbers and cross heads may disrupt the whole operation.

**Diameter of explosive cartridge.**—The proportion of the depth of the undercut to the height of the coal determines the balance of the shot. The better balance, the better the shot. Poor balance may be partially compensated for by varying the diameter of the explosive cartridge and thus changing the position of the charge in the bore hole.

In thin seams smaller diameters are used so that the charge may be strung out along the bore hole and thus assure some action near the face. In thicker seams, where the balance is

usually better, the charge should be concentrated at the back of the bore hole.

**Stemming.**—Proper and adequate stemming becomes of increased importance with mechanization again because of the time element. It is possible to return to work at the face sooner when confinement of the explosive has been good. This is because incomplete confinement allows the generation of more fumes, especially carbon monoxide, in the working place. Moreover, positive confinement increases the efficiency of the explosive.

**Method of detonation.**—Electric blasting is usually preferable in mechanized mines both as a time saver and for safety. Where the permission of the state bureau of mines may be obtained, it is possible, by using delay electric blasting caps or delay igniters to fire the whole round, one hole at a time, without returning to the face. When electric blasting is used there are less fumes and the blaster has better control over his shot.

**Choice of explosive.**—Conditions brought by mechanization often necessitate a change in the explosive used. The slower acting permissibles usually give less degradation and more throw—two desirable characteristics. It is, however, often necessary to use higher velocity types of explosives where impurity bands must be broken.

Though explosives are often chosen on a strength-velocity basis the density and diameter of the explosive are equally important. In seams of coal 4 feet or more in thickness large diameter cartridges permit concentrating the charge in the back of the hole. This usually allows well balanced shots as well as reducing the area of the coal that is in contact with the explosive charge.

By J. L. ROMIG  
Technical Representative  
Atlas Powder Co.



# With the COAL DIVISION

of the AMERICAN MINING CONGRESS

## ENGINEERING STUDIES and CONVEYOR OPERATING COST ANALYSES\*

IN VIEW of the great number of successful conveyor installations now operating under widely varying conditions as to seam characteristics, heights of coal, roof conditions, and systems of mining in use, it can be correctly stated that successful results can be attained if all the underlying factors that make for successful conveyor operations are considered and put into correct use. Such consideration should be made prior to the decision as to the type of equipment to be purchased and the mining practices to be used, and the decision on the following original factors will be the determining points in the success of the installation.

1. The organization, from the management to the face supervisory force, must be sold on the idea that this equipment can be made to work successfully.

2. The miners employed on this class of equipment must be convinced of the desirability of this kind of work.

3. The correct type of equipment best suited for the conditions must be selected—that is, chain, shaker, scraper or mobile conveyors.

4. The mining system decided on must be adaptable to the type of conveyor used.

5. Prepare to install a system for studying performance, costs and other related subjects.

A detailed consideration of the factors enumerated above brings out the following fundamentals.

### Management

Too often the management of a producing company, on reading an article

\* This paper, which summarizes certain recommendations of the Coal Division Committee on Conveyor Mining, was presented at the Annual Coal Convention of the American Mining Congress, Cincinnati, Ohio, April 25, 1939, as a part of a joint presentation prepared by Messrs. McCarthy, chairman of the committee, and C. P. Brinton, Mining Engineer, Barnes & Tucker Co.

By T. F. McCARTHY

General Superintendent  
Clearfield Bituminous Coal Corp.

or hearing a talk on conveyor mining, becomes convinced that a certain type of equipment can be successfully operated in their own mine, and this equipment is purchased without consulting the local mine officials and without being fully informed as to what conditions it must operate under. The local officials, not being acquainted with the equipment and having no trained person to properly supervise its installation and operation, are often prejudiced against it, and, after installing it, are indifferent to the results attained. Consequently a failure results.

Management must learn that the local supervisory force must have a knowledge of the problems involved in securing successful conveyor operation. When an operating company is considering the installation of cost-reduction equipment, the mine superintendent and mine foreman should be sent to mines having similar conditions to observe the problems involved and to study its possibilities for successful installation in mines of their own company. In this study they must consider the physical conditions, seam characteristics, marketing problems, and, in particular, the possible attitude of labor towards the equipment.

### Labor

Labor must benefit in the installation of conveyor equipment by increased earnings and more desirable working conditions, and those of us who have had many years of experience with conveyors know that it takes time to train a large group of miners to become efficient conveyor

men. Any program undertaken should be a gradual development, and no effort should be made to train a large group of men at one time without a previously trained supervisory force.

It would be generally recommended that installations be made only as rapidly as crews can be properly trained, and that the initial installation be started under favorable conditions in order that the miners may become acquainted with and trained for this work with the least difficulty.

### Type of Equipment

The particular type of equipment most suitable for a particular condition should be studied very carefully. There are available the chain, shaker, belt, mobile, and scraper conveyors, and they all have applications under particular conditions: Seam characteristics as to the preparation problem involved, which include cutting, drilling, shooting, loading, cleaning, required at the face; roof conditions as influenced by timbering requirements, whether only first mining or pillar retreat is to be carried on; grade conditions that influence the conveying of coal; and investment cost of conveyors, mining machines, coal drills and auxiliary conditions—all these must be carefully considered. From available information, maintenance cost of a certain type of equipment under a particular operating condition should be estimated, cost of moving equipment, and the continuity of mining should also be investigated, and very special emphasis must be placed upon the hazards involved in the operation of equipment, particularly as it applies to the use of conveyors in gaseous mines.

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† See pages 38 and 39 of March, 1939, Mining Congress Journal.

information from which can be developed the most efficient way to perform all the operations involved in conveyor mining.

Correct and complete costs on every item of cost represented in conveyor mining is essential if the operator is not to be misinformed on the results being secured. To this end the Conveyor Committee has developed the forms for recording performance data that are essential if a true picture of a conveyor operation is to be successful, and we recommend the use of both the Time Study Form and the Performance Data Form for the study of this method of mining.

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charging onto a gathering belt, and was submitted to emphasize the fact that conveyor mining includes many operations in addition to the coal loading at the face. It will be evident from a study of this layout that quite a number of items of labor and equipment must be taken into account in

An extract of Mr. Brinton's paper appeared in the May JOURNAL and the complete papers of both Messrs. Brinton and McCarthy will of course be carried in the 1939 Year Book on Coal Mine Mechanization to be released early in July.



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## THE MINERS' EXHIBIT

THE operating devices displayed in the Miners' Exhibit at the Annual Coal Convention of the American Mining Congress were invented by men at the mines and are well worth detailed study. Everything shown had a useful purpose, and each one has resulted in making some phase of work easier, safer and more efficient.

In order to give the mining indus-

try the benefit of these ideas, THE MINING CONGRESS JOURNAL will publish, from time to time, photographs of exhibits which were shown together with descriptions explaining their use.

The devices shown in this issue are among those which received prize awards, and the accompanying descriptions were written by the men who have made these inventions.

### MINE CAR SAFETY STOP

By ROBERT DICKSON

Safety Director  
West Virginia Coal & Coke Corp.

This simple car stop device is very economical, scrap iron from dismantled mine cars, etc., being used in its construction. A piece of flat iron preferably about  $2\frac{1}{2} \times \frac{1}{2}$  inches wide is turned, to hook it on the inside of the rail with a riveted button to hold it

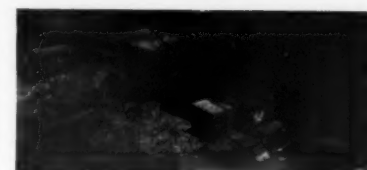
on the outside. It is somewhat similar to the Fairmont mine tie. Another piece of iron is used for a hook on the car with a  $\frac{1}{2}$ -in. piece of round iron shot welded on it for a hand hold. A piece of  $\frac{3}{8}$ -in. steel rope approximately 6 feet long is connected to the



clamp on the rail and the hook on the car with  $\frac{3}{8}$ -in. rope clamps. One blacksmith can make 8 to 10 per day.

The cost of the iron is negligible. The rope clamps cost seven cents each, and if sufficient old rope is not available new rope costs very little.

The hook on the rail should be placed by the loader so that it can hold



the car according to the grade. This eliminates the necessity of a loader putting his hand near the car wheels to scotch with wood, etc. If the place is on the up-grade at face, the motorman bumps car sufficient to get slack to throw rope off. If on the down-grade, the motorman pulls car sufficient for loader to remove hook. Should this car stop be used for side track, then larger, stronger hooks should be made.

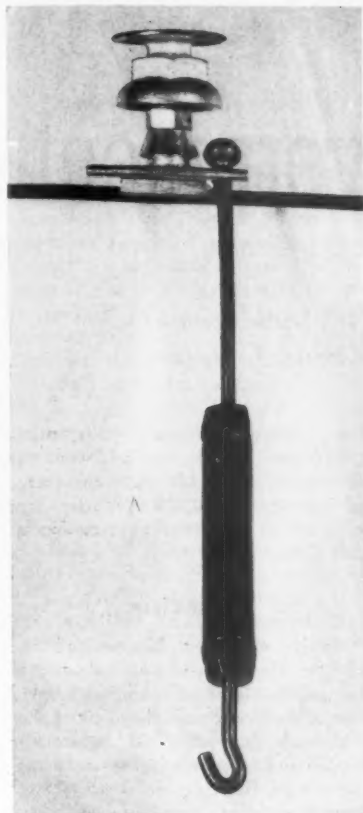
### CABLE REPAIR SLED

By LOUIS O. CARROLL

Midland Electric Coal Corp.

In our experience this repair sled has been a most useful contrivance. For major repair jobs, the cable is laid over the sheaves for support while penciling, soldering and taping the individual conductors and repairing the grounded conductor sheaths. The cable is then tied with half-inch rope and the turnbuckles run out to tighten the conductors for the taping of the outer jacket to complete the splice. For minor repairs, the cable is allowed to run over the sheaves until a tear in the outer jacket appears. Such tears are remedied by cementing and filling with rubber tape, with two layers of friction tape over all.



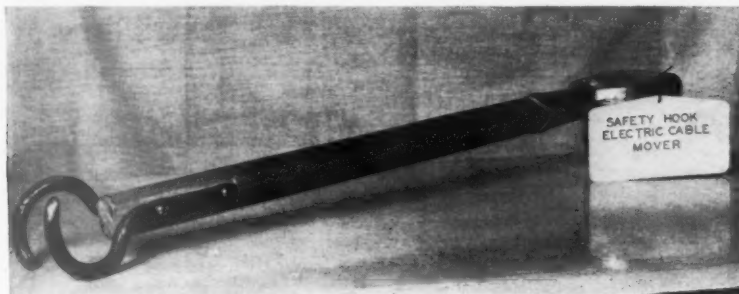


## ELECTRIC CABLE SAFETY HOOK

By S. E. THORNE  
Lehigh Navigation Coal Co., Inc.

The device is simply made by riveting two hooks on the end of an ordinary short wooden shovel handle. It is used in moving the insulated electric

power cables in connection with the large power operated shovels at our stripping operations. The double hook allows for a tight grip without damaging the insulation on the cable, and the wooden handle provides protection from possible leaks through the insulation.



## FUSED HOOKLESS NIP

### and TROLLEY CLAMP

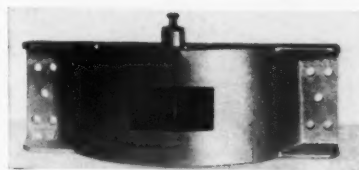
This nip is designed for the protection of both the operator and the locomotive equipment, eliminating the use of the old hooked type which has been responsible for many accidents, some of them fatal.

The nip is made of one 8-in. length of 1-in. diameter tubular horn fibre which is tapped at each end so as to screw in bronze terminals to which a threaded hookless nip is applied in one end and a connection to the cable in the other. This length of horn fibre is slotted so as to accommodate a wire type of fuse (which is renewable) between the two terminals. A second length of 1½-in. diameter fibre is used as a shield, protecting the operator from coming in contact with the current. The nip portion of the device may be made from new or re-

By EZRA LANE  
Shop Foreman  
Boone County Coal Corp.

claimed trolley wire, using any desired length from 12 inches to 18 inches. It is threaded on one end and has a ball or button type head on the other for attaching to the trolley hanger when it is desired to operate from the cable.

For attaching this type nip it is necessary to have a specially designed trolley hanger at the mouth of each working place or wherever it is necessary to operate the locomotive from the cable. Any ordinary trolley clamp may be used for this purpose by welding or brazing a piece of ¾-in. round rod to the side of the clamp and parallel with the trolley, thus making a fork for holding the ball or button head nip.



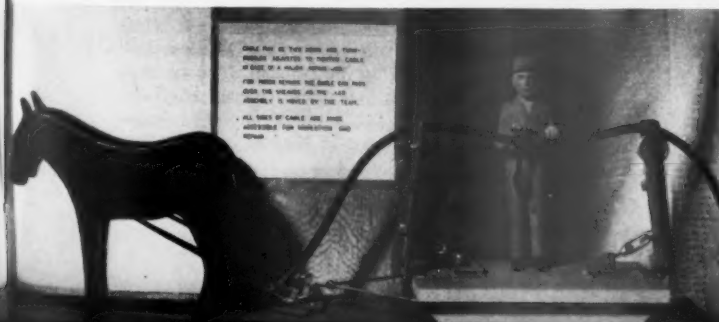
## STEEL BUMPER

By H. K. MUNDORFF  
Wheelwright Shop Supt.  
Inland Steel Co.

After continuous trouble with the old wood bumper and confusion arising from the loss of coupling pins, an all steel welded bumper was designed for mine locomotives which incorporates a permanently attached coupling pin.

Since being put into service, this type bumper has given excellent service, and to date not a cent has been spent on maintenance.

The attached pin has proven practical and has saved much time for the motor crews. In case of breakage, it can be quickly removed by taking out four counter-sunk screws from the bumper.



Model of  
cable  
repair  
sled



# WHEELS of Government

● *As Viewed by A. W. Dickinson of  
the American Mining Congress*

CONGRESSIONAL leaders in conferences with the President have recently been told by him that the Congress ought to adjourn by mid-July. The present hot summer weather, too, is turning the thoughts of the legislators toward cooler places. It has been generally conceded in the present session that administration forces have been compelled to devote a major portion of their time in fighting a rear-guard action against the attempt to amend so many of the ill-advised and incomplete legislative enactments of the New Deal. Really the Congress has done little so far beyond passing nine Departmental appropriation bills which have become law and sending several others to conference. Due before the Congress are the Revenue Bill, the Neutrality Act, Social Security Amendment, Wage-Hour Amendment, National Labor Relations Act Amendment, continuation of the stabilization fund, the big relief bill, three Railroad Relief bills and others. It is apparent that much of this proposed legislation will have to be carried over into 1940 unless the Congress resists the desires of the President and remains in session until the end of August.

## Taxation

On Friday, May 26, at 7:00 p. m. came the sudden announcement of hearings before the House Committee on Ways and Means on the proposed revenue changes. Immediately on the following day, Saturday, at 10 a. m., Secretary Henry Morgenthau and Undersecretary John Hanes appeared before the full Committee and stated the position of the Treasury. The contemplated changes include the removal of the undistributed corporate earnings tax, adoption of a flat rate of 18 percent for corporations, removal of the \$2,000 limitation on capital losses, restoration of the right to carry

losses forward for two or three years, and an annual revaluation of capital stock for capital stock and excess profits tax purposes. The Committee hearings continued on Monday, May 29, and then recessed until Friday, June 2, with the expectation that they would be concluded that week. The Revenue Bill of 1939, including also a blanket continuation of the excise taxes, is expected to be reported at an early date and quickly passed by the House. It is believed that there will be little change made in the Senate and that the bill will become law in approximately the form recommended by the Treasury.

## National Labor Relations Act

Hearings on the Burke and other proposed amendments to the National Labor Relations Act have continued before the Senate Committee on Education and Labor since April 11. More than 95 percent of the time has been taken up by members and representatives of the National Labor Relations Board and by representatives of the American Federation of Labor. Experiences in the operation of mines, mills and smelters have been presented to the Senate Committee by nine representatives of the industry in the following order: H. L. Faulkner, Alaska Juneau Gold Mining Co.; D. D. Moffat, Utah Copper Co.; Horace Moses, Chino Mines, Nevada Consolidated Copper Corp.; Ross Leisk, Sunshine Mining Co.; Joseph W. Walton, Hillside Mines, Inc.; Jesse O. Betterton, American Smelting & Refining Co.; David P. Strickler, Golden Cycle Corp.; H. P. Henderson, Texas Mining & Smelting Co.; and Donald A. Callahan, vice president, American Mining Congress.

Chairman Elbert Thomas of Utah commended the presentation of the mining industry's witnesses as en-

lightening and helpful. It is anticipated that the hearings will continue for several weeks, although enactment of amendments to the Act may have to go over until the next session of this Congress.

## Wage-Hour

Chairman Mary Norton of the House Committee on Labor had planned late in April to bring her bill for amendment of the Fair Labor Standards Act of 1938 before the House of Representatives under a suspension of the rules on May 15, but opposition from agricultural and other groups caused her to abandon the plan. After attempting on two succeeding days to secure recommitment of her bill to the Committee on Labor and meeting with firm House refusal, Mrs. Norton reconvened her committee to prepare further amendments, with the expectation of bringing the bill up under a suspension of the rules on June 5. In the meantime a group of representatives from western mining states have made vigorous efforts to secure the right for mine employees to work a full week.

## Social Security Amendments

After months of hearings and consideration the Committee on Ways and Means is daily expected to report for House action the amendments to the Social Security Act which continue the 1 percent payroll tax for old age pensions for the three years, 1940, 1941 and 1942, provide old age insurance benefits for aged wives, widows, children and aged dependent parents, and advance the date for beginning monthly payments to January 1, 1940. States may reduce their unemployment insurance contribution if an "adequate reserve has been provided"; the unemployment compensation tax is limited to the first

\$3,000 annual salary received by an employee.

#### Bituminous Coal Commission

Under the second reorganization plan sent to the Capitol by the President the National Bituminous Coal Commission was abolished and the functions of the Commission transferred to the Secretary of the Interior. This order now becomes effective on July 1, and while it is assumed in many quarters that the Secretary of the Interior will continue the effort toward price fixing as provided in the Guffey Act, it is also realized that there is a trend in the Department of the Interior toward the methods used in the petroleum industry, namely, restriction of production and allocation of output. Representative Allen of Pennsylvania has introduced a rewritten bill for amendment of the Guffey Act, so edited as to meet the new situation wherein the functions of the former Coal Commission are placed under the Secretary of the Interior. Mr. Allen has also introduced a bill which would repeal the 1-cent per ton tax levied on bituminous coal production by the Guffey Act.

A bill providing for annual Federal inspection of coal mines under the Department of the Interior has been introduced by Senator Neely of West Virginia and Representative Kent Keller of Illinois. The measure is sponsored by the United Mine Workers of America and is a distinct invasion of the police powers of the sovereign states. Hearings before a subcommittee of the Mines and Mining Committee of the Senate were begun on June 1 and were continued to June 8 upon request by representatives of the American Mining Congress in order that coal producers from various states may come to Washington and express their views to the subcommittee. Senator Logan of Kentucky is chairman of the subcommittee, and Senators Schwartz of Wyoming and Davis of Pennsylvania complete the membership.

#### Strategic Minerals

The bill introduced by Senator Elbert Thomas of Utah is now awaiting Presidential approval. It now provides \$100,000,000 to be used over a four-year period in the purchase of strategic materials under the designation of the Army-Navy Munitions Board. Under the provisions of the bill, duties received by the Bureau of

the Customs on materials purchased in foreign countries may not be used for the purchase of additional materials. The \$350,000 and \$150,000 for the Bureau of Mines and the U. S. Geological Survey respectively are retained in the bill, and these two agencies are charged with a search, development and beneficiation of low-grade ores program as a measure of preparedness in national defense.

#### Assessment Work

Late in May the bill providing for the suspension of annual assessment work on mining claims introduced by Senator Murray was "indefinitely postponed" by action of the Senate on motion of Senator Carl Hayden of Arizona. This disposes of the question of annual assessment work for the year ending July 1, 1939, and gives notice to all claim holders that

the assessment work must be performed.

#### Stream Pollution

Early in May the House Committee on Rivers and Harbors reported the Barkley bill which had been passed by the Senate. A few administrative amendments were added and the bill has been on the House calendar for over three weeks. It is understood that Chairman Mansfield of the House Committee on Rivers and Harbors will ask for a rule within the next two weeks, and it is expected that the measure will be passed by the House in its present form. Meanwhile it is understood that the Isaak Walton League and the Audubon Society are exerting heavy pressure on Committee members and House members to prevent the passage of the bill and urging that a mandatory type of measure be enacted in its stead.

A View of the National Cathedral

—Horydczak





# VIEWPOINT of MINING on the FEDERAL TAX LAWS

**Q**UESTION having been raised as to what provisions of our present Federal tax system were really proving serious deterrents to business development and employment, the Executive Tax Committee of the American Mining Congress felt it appropriate to make definite inquiry on this point from representative, thoughtful persons engaged in the mining industry.

To that end the chairman of the committee addressed a personal letter to a large number of those actively engaged in mining, from whom we could expect intelligent answers to the request for a statement from each of them as to "those features of our present tax law which seem to them definite deterrents to business progress and development, including particularly those features which are deterrents to the making of new investments and development of new enterprises, and which affect the employment situation." Those to whom letters were addressed included what seemed a representative list—those engaged in large, medium and small enterprises, some with well-developed, profitable mines; others with new ventures which they were endeavoring to develop.

No formal questionnaire was submitted nor was there any listing of special features for consideration, since the desire was to have the wholly uninspired replies as to what those who received the letters themselves considered major deterrents. Accordingly, there was not a uniformity of answers to be tabulated by counting "yes" or "no" replies. The following summary, therefore, deals with substance rather than technicalities.

There are decided differences as to the points on which various persons lay primary emphasis, manifestly reflecting in this regard their own individual situations. There were certain points as to which there seemed general agreement, but there were other points strongly emphasized by a few

which seemed particularly to bear upon them although not similarly affecting taxpayers in general.

The following summarizes the general conclusions to be drawn from these letters.

## "Declaration of Policy" Endorsed

There was general approval of the position taken by the American Mining Congress on taxation in its "Declaration of Policy" of January 27, 1939, the last two paragraphs of which read as follows:

"The Congress made substantial progress towards a fairer system of business taxation through the enactment of the Revenue Act of 1938 which greatly modified the penalty tax on the so-called undistributed profits of corporations, assured more equitable treatment of capital gains and losses, preserved the principle of reasonable depletion allowances and permitted periodical redeclaration of value for capital stock tax purposes. These provisions and the fact of their enactment have had an encouraging and stimulating effect on employment and business enterprise and will yield increased rather than decreased revenues to the Government. We urge the repeal of the remnant of the undistributed profits tax and the elimination of this and other needless complexities of the law.

"The flat-rate tax upon corporate income should be reestablished; business losses of one year should be carried forward and deducted from future income; taxable income should be computed upon the basis of consolidated returns compulsory for affiliated corporations; the tax on dividends received by corporations should be removed; the deduction of capital losses should be allowed without limitation; taxable income should conform more nearly to true income computed in accordance with accepted accounting practices, and the capital stock tax should be repealed at the earliest possible date, and until repealed an annual declaration of value should be granted. We are confident that these are all appropriate features of tax legislation designed to yield maximum revenues over a period of years."

Some contented themselves by saying that they had little to add to this.

Others laid special emphasis on some particular items.

## Repeal Undistributed Profits Tax

The repeal of the undistributed profits tax was the subject most generally mentioned. Typical comments are as follows:

(a) "In the first place, the undistributed profits tax has been ever since it was enacted a specific hindrance to the mining business and especially to new enterprises therein. I know this from discussions with clients engaged in the mining business who have on more than one occasion concluded to forego development of some speculative mining enterprise because of the necessity of the payment of the undistributed profits tax. It is quite customary in such cases to lend money to a new corporation that might undertake the development work and take notes therefor payable only out of income from the property. The necessity of paying the undistributed profits tax defers the time when the notes can be repaid and definitely increases the hazard.

"The reduction in rate to 2½ percent was a good step in the right direction and is important. The removal of this residual tax would provide a definite encouragement, perhaps psychologically more effective than the rate would suggest."

(b) "The surcharge on undistributed earnings was a terrible blow to mining industry and expansion because most mining companies, like ours, are self-financing. We have an investment of over \$12,000,000 in our own plant and that of affiliates, all of which did not require any new financing by the public or our stockholders but was paid for over a period of some 20 years from surplus earnings. The surcharge on undistributed earnings definitely put a stop to such procedure."

(c) "The corporate undistributed surplus tax is a nightmare to the gold mining industry. In nearly every instance it is impossible to block out for any period in advance the amounts of ore to be developed. There may be and usually are periods when bullion production fluctuates very widely, and development work must be varied in amount and extent in order to meet the desirable end of a continuous flow of ore into the mills.

By HENRY B. FERNALD

Chairman, Executive Tax Committee  
American Mining Congress

This requires in turn the carrying of substantial surpluses as a cushion to meet these fluctuations. To penalize such surpluses by taxation, as has been done, is a very distinct deterrent to enterprise in a highly speculative industry like gold mining. I believe this tax should be entirely repealed."

### Capital Stock Tax

Next in order of general emphasis was repeal of the capital stock tax, sometimes coupled with the statement that the tax should either be repealed or annual redeclarations should be permitted. The following are typical comments:

(a) "The existing capital stock tax and excess profits tax should be eliminated because they represent additional burdens on operations based on guesses with disproportionate tax penalties on high and/or low guesses and with no rebate or adjustment for intermittent loss years. These tax provisions are especially harsh on new or expanding enterprises where it is impossible to guess with any degree of accuracy future or even current year operating results."

(b) "The remnant of the undistributed profits tax should be given a decent burial, and the excess profits and capital stock taxes repealed or at least modified. The latter two have been resolved into a sort of guessing contest and as such deserve no place in any fair and equitable tax system. If an annual declaration of value were to be permitted under the capital stock tax some of its uncertainty would be removed but the basic objections to this and the excess profits tax would still remain. The only logical solution appears to be complete repeal of both of these 'nuisance' taxes with a reconsideration, if necessary, of the normal tax rates to be applied to corporate income."

(c) "The capital stock tax should either be eliminated or provision made for annual declarations, because it is nothing more or less than a guessing contest as to what a company should file as a declared value. It is not a tax, in my opinion, on a fair basis, and in many cases results in an undue hardship on small companies as well as large."

(d) "It would seem to me that with the uncertainties of business and profits from year to year, an annual capital stock tax declaration should be provided in the law and that the three-year declaration is as great a deterrent to business at the moment as the 2½ percent undistributed profits tax. If business had the right to declare capital stock tax values applying only to the current calendar year, considerable uncertainty as to tax liability would be eliminated."

### Carry-over of Losses

A business loss carry-over came next in general mention although many gave it primary emphasis. The periods urged for carrying forward losses varied from two to five years.

(a) "It seems to me there is no greater injustice in the present law than the prohibition of such a carry over (of loss)."

(b) "These businesses are characterized by violent fluctuations from year to year and thus are placed at a distinct disadvantage as taxpayers in comparison with many other types of enterprise. It is imperative that



HENRY B. FERNALD

some means be provided for balancing the losses with the gains over the years."

(c) "Regardless of how much a corporation loses this year, it must pay the full tax on its profits next year. This is killing industry. Permission should be given to group two or three years together such as was the case several years ago."

### Capital Gains and Losses

The subject of capital gains and losses was emphasized by many. There was general agreement that the present treatment of capital losses for corporations was bad and was a real deterrent to new investments. Some urged that capital losses should be allowed without limitation; some urged the importance of according similar treatment to capital gains and losses, whether this were by taxing capital gains and allowing capital losses to be deducted or by exempting capital gains from tax and not allowing capital losses as deductions. The treatment of capital gains and of losses to individuals was also mentioned as having a serious deterring effect on new investments. Some urged particular need of simplifying the present provisions. Among the comments were the following:

(a) "LIMITATION OF LOSS ON SALE OF CAPITAL ASSETS.

This is very definitely a deterrent to investment of new capital. The law should be amended either to provide for the same limitations on gains and losses or the limitation should be removed entirely. It is certainly not encouraging to investors to face a situation wherein, if they lose, there is a limitation upon the amount which they may deduct, while if they gain, the Government is the best partner they have."

(b) "Another important change would be to allow corporate credit to the full extent of capital losses sustained. The limitation of such loss to capital gains plus \$2,000 in my opinion constituted a definite restraint upon

the willingness of those in charge of mining enterprises to hazard capital in new developments. If the entire loss were deductible, the miners would feel that the Government were sharing the enterprise and be much more inclined to undertake speculative commitments."

(c) "The matter of taxation of capital gains and the limitation on the deductibility of capital losses is one on which opinions differ, but there would seem to be no doubt that the present law operates to discourage the investment of private capital. Over a long period of time it would appear that the net result of the existing law is a tax largely on capital rather than on income. This could be prevented by further modification of the Revenue Act to permit a greater offsetting of capital losses against ordinary income, particularly in the case of corporations. If such modifications were enacted however, it is questionable whether in the long run tax revenues would be greater than if the entire tax on capital gains were to be completely repealed."

(d) "Taxes on capital gains should be revised so as to encourage investment rather than to discourage it. The short-term and long-term provisions should be eliminated with a flat rate substituted with a limit on the maximum amount of tax on such gains."

(e) "The repeal of certain provisions with respect to the deduction of capital losses and the tax on capital gains. We believe that all capital losses should be deductible and all capital gains taxable. As a general principle, we would be content to have both tax gains on the sale of capital assets and tax losses on the sale of capital assets eliminated from the field of income tax."

(f) " \* \* \* the deduction of capital losses should be allowed \* \* \* losses not offset by gains should be carried over from year to year until the loss is absorbed, and without distinction between short-term and long-term holdings."

(g) "All capital losses should be permitted to be taken in full and distributed over a 3-year period if so elected by the taxpayer."

(h) " \* \* \* the high surtaxes on individuals and the capital gains tax on individuals have the effect of being a deterrent to the making of new investments and the development of new enterprises, which of course affects employment. \* \* \* It seems to me it is among the things which are basic to the whole problem of preventing taxation from being a drag and deterrent to business progress and development, and employment. \* \* \* It would be a great relief if one could be assured that this (capital gains tax) could be limited definitely to 15 percent on profits realized after two years. I don't know just how that assurance could be legally given, but it would be a wonderful step, because, as it is now, one never knows when this rate will be changed."

### Consolidated Returns and Intercompany Dividends

That consolidated returns should be required or allowed and that the tax on dividends received by corporations should be eliminated are generally coupled together by many, although a number urged that the tax on dividends received by corporations should be eliminated without specifically urging that consolidated returns should be required or allowed. One letter that urged other changes expressed the

belief that intercorporate dividends should be taxed and the filing of consolidated returns should not be permitted. One letter states:

(a) "It seems to us that this (the right to file consolidated returns) is one of the most important, if not the most important of the issues because it would automatically carry with it the elimination of a number of punitive tax penalties and inequalities which at least in their cumulative effect are real deterrents to business recovery and progress."

### Surtax Rates Too High

A number speak of the elimination of the high individual surtax rates as essential to the encouragement of new investments. Among the comments are the following:

(a) "We think the individual income taxes are too high, particularly in the top brackets, tending to discourage initiative and defeat the best results from this form of taxation."

(b) "The rates in higher brackets should be cut for the individual taxpayer. No tax should be more than 50 percent. All capital losses should be permitted to be taken in full and the taxpayer should have the right to distribute losses over a 3-year period. In my opinion these rates in the higher brackets have prevented capital from going into speculative or semi-speculative enterprises, particularly mining. I know of one instance where a man's tax was 79 percent of his income for 1936 in a fortunate venture. Owing to the tax situation he has been absolutely unwilling to go into anything else, because he felt that his proportion of gain was so small compared to the tax paid to the Government that the risk was not justified. It is absolutely essential that losses sustained may be set off against profits—at least for a 3-year period. In the case cited, if the taxpayer had continued in the mining business during 1937, 1938 and possibly 1939, and had sustained losses, there ought to be some way of offsetting it against the large profit made in 1936. In a way it should be treated as a continuing business, even though it did not involve the same properties."

(c) "The rate for a large income must be reduced. We all know that if a wealthy man (and the wealthy men have helped make America) who is already in a 75 percent bracket takes a chance on a new venture and loses a million dollars this year, he must make a million dollars for four years to get his original million back. Of course, this similar rule applies to the man who is in a 50 percent bracket, and with Federal and State income taxes together, many of our large industrialists reach a tax rate that causes them to pay 50 percent income taxes."

### Other Tax Deterrents—Administrative Features

Other changes which are mentioned sometimes by only a few, but with great emphasis on their importance, are the following:

(a) Permission to use the "last-in-first-out" inventory basis with amendment of the present provision to make it practically effective.

(b) Social security taxes to be reduced.

(c) Revision of foreign tax credit provisions to make them equitable with respect to partly-taxable income.

(d) Eliminate tax on so-called "Gain" from repurchase by a corporation of its own bonds.

(e) Eliminate duplicate tax on corporate dividends.

There were an extended series of comments urging various general measures, such as:

(a) The need of a system of income taxation such as could be expected to continue unchanged for a substantial period of years so that business men or investors could look ahead with some confidence as to the tax burden they would have to count upon.

(b) That treasury regulations should not be amended retroactively to the detriment of the taxpayer.

(c) That there was need of simplification of the tax system.

(d) That income should be determined more in accord with accepted accounting principles.

(e) That duplication in Federal and State taxes should be avoided.

(f) That tax returns should be simplified and that tax administration should be improved.

(g) That the bituminous coal tax was too large.

It is impossible without unduly extending this report to quote at length on all these matters, but the following extracts are typical:

(a) "The administration of our present tax laws and the amount of bookkeeping and accounting required thereunder constitutes an unwarranted expense for all industries. If this can be simplified by statute it would indeed be desirable. I see no objection to the combination of the capital stock tax and the corporate income tax in such a way as to avoid any total increase in the tax payable. Also, endeavor should be made to simplify the bookkeeping under the social security tax administration. The overhead expense imposed on industry in connection with the payment of all of these taxes by the exceedingly complicated regulations of the Treasury Department is a very serious handicap. Something should be done to simplify this reporting procedure."

(b) "The always present uncertainty and confusion concerning Federal taxes under present and prior revenue laws is most undesirable. I don't suppose at this particular stage there is anything that can be done about it though the present complicated and oftentimes unfair tax structure is bound to adversely affect both business and employment."

(c) "Our company has, at the present time, plans for the construction of other plants, which will necessitate quite a large outlay

of money, and which would give employment to many men, as well as distribute quite a large volume of business among lumber, machinery and various supply houses in this district; however, the constant threat of continually increasing taxation and the continual changing of the tax laws prevent us from making the investment hereinbefore mentioned. \* \* \* We feel that if our Government could adopt a policy of taxation and adopt laws which we would feel reasonably sure would not be changed over a period of years \* \* \* we could, and would, go ahead with the plan of development and expend a large sum of money immediately."

(d) "The lack of a reasonable degree of permanence and stability in our tax structure is self-evident and undoubtedly a deterring factor as regards business expansion. Not only has Congress changed the law nearly every year, but it has sometimes deferred such changes for many months thereby altering the tax consequences of transactions entered into earlier in the year. The natural result is a hesitancy to risk capital in transactions whose tax effect may be uncertain not only in future years but sometimes even from the very start. In addition there is the Treasury Department's practice of amending its regulations and rulings with retroactive effect—a further cause of uncertainty and hesitation. \* \* \* In general, it should be urged that taxable income be determined more nearly on the basis of widely accepted accounting principles and that many of the arbitrary provisions of the existing laws be eliminated."

(e) "The main deterrent is the uncertainty of any stability in our tax system. In contemplating the expansion or new development of gold mining properties where the price of the product is fixed by law and additional costs cannot be passed on to the purchaser, the present or prospective operator must be able to figure with some degree of certainty what the costs of operation are going to be. Current taxes are a very large element in that cost, and if in addition to current taxes there is the ever impending threat of an increase in Federal taxation—whether or not it actually takes place—this constitutes a great deterrent to new ventures."

There were other matters discussed in these various letters, such as the need of reduction in the aggregate tax burden on business and need for reduction in government expenditures, the elimination of tax exemption of securities, the possibility of broadening the income tax base, etc. However, the individual points on which general emphasis was placed are those mentioned above.

It is to be understood that the writers of these letters have been speaking particularly from the standpoint of those features which they have seen directly affecting the mining industry, but there was considerable emphasis on the need for general business improvement and increase in employment so as to give demand for the products of the mines.

Whatever difference of opinion as to individual items and the manner in which these might be remedied, there was general agreement that there were features of present Federal tax laws



which were definitely acting as deterrents to business enterprise, to new investment and to employment, and that it was as much in the interest of the Government revenues as it was in the interest of business profits that these deterrents should be removed.

The few quotations here given from the letters are typical, but not exhaustive, of the expressions given. Often the writers stated the deterrent factors without trying themselves to pre-

scribe the remedies, but the letters are no less valuable which do this because if we can agree on the deterrent factors we should then be able to devise the appropriate remedies.

Because this is believed to represent a valuable factual survey of the opinions of the mining industry, it is summarized in this report and presented as a basis for further consideration and study. It seems fundamental that those features of our tax laws which

are obstructing business progress and development are also working for increased unemployment, for increased government expenditures and for decreased government revenues. If we can see clearly what these deterrent factors are, we can then know better what needs to be done to bring about decrease in government expenditures, increase in government revenues, increased employment and furtherance of the general welfare of the people.

## Mining Copper at Lepanto Consolidated

(Continued from page 25)

ing and concentrate samples are cut by water-operated automatic samplers.

The power plant is composed of three 420-hp. Krupp Diesel engines, direct connected to G. E. generators. An adequate machine shop for general plant repairs adjoins the power plant, which is adjacent to the mill.

### Transportation a Major Problem

Concentrate is loaded from the drier bin into specially fitted heavy drums, each holding  $\frac{1}{2}$  metric ton of the product, and loaded onto trucks for shipment to the storage bin at tide-water. Concentrate haulage is a major problem in connection with the project, for the product must be trucked a distance of 115 kilometers over the mountain trail, which winds its irregular way along the precipitous mountain sides near the top of the Cordillera, which form the backbone of Luzon, into Baguio. At Baguio it is transferred to heavier trucks of greater capacity, and hauled an additional 60 kilometers to San Fernando, La Union, where it is stored in bulk at the company's bins until shipped by boat to the smelter. Haulage is accomplished from the mine to San Fernando at a cost of 15 pesos per ton.

The grade of ore at present being handled at Lepanto averages approximately 2.5 percent copper, with .04 oz. per ton of gold and less than 1 oz. per ton of silver. Recovery in the mill has been approximately 85 percent on the copper, and has held close to 50 percent on the precious metals. The ratio of concentration on the copper has been near  $12\frac{1}{2}$  to 1. Approximately 13,000 dry short tons of ore are being milled each month.

Labor at Mankayan is recruited principally from the Igorots. They

are in general splendid workers and adapt themselves to mining quite rapidly, although they do not have the efficiency of the experienced American miner.

The Mankayan climate is ideal, despite heavy summer rains, which become torrential whenever a typhoon is near. Altitudes on the property range from three to four thousand feet, which induces comfortable temperatures, and makes malaria very rare, so laborers and staff members enjoy good health. As mining camps go, Lepanto is unusual, located among the pines, mingled with tropical tree ferns and banana groves.

Acknowledgment for criticism and assistance in the preparation of this article is made to Clyde A. DeWitt, president, Lepanto Consolidated Mining Company; L. R. Nielson and George Scholey, president and manager, respectively, of Nielson & Company, Inc.; O. M. Bishop, mine superintendent; and W. G. Peryam, mill superintendent at Lepanto.

### Field Trips of Washington Mining Men

A pleasant field trip was enjoyed by three carloads of members of the Washington State Chamber of Mines early in May, the trip including a visit to Coulee Dam and the mines of the southern Republic district.

In the near future the Chamber will announce an itinerary of spring and summer field trips which will include one to the Skagit Power Project, one to the Royal and Howe Sound mines, a trip by private cruiser to Guimas and Cypress Islands, a trip into Mt. St. Helens mining district, another to the Horse Heaven Hills, and a repeat trip to Coulee Dam and Republic.

### Modern Homes For Chino Mine Workers

Work is well advanced on completion of 100 houses for employees at the mill location of the Chino Mine Division of Nevada Consolidated Cop-

per Corporation, located at Hurley, N. Mex. The houses are furnished with copper roofs, hot and cold water facilities, and modern bathrooms. In addition, 37 houses are also being provided for employees at the smelter location.

The Chino operations normally employ about 1,200 men, including those working on construction.

### Washington Mining News

A new placer company was recently organized and will operate Columbia River Bars near Bruster, Wash. Leonard A. Cross is engineer and Harold A. Blanche of Wenatchee is director. Announcement was made by J. G. Cross of Nespelem that equipment is being installed for immediate operation.

The Azurite Mining Company are reported to have engaged a local engineer to examine the Azurite mine which was recently operated by the American Smelting and Refining Company, in order to ascertain the probable extent and quality of the ore showings on the property. It is understood that further protection will necessitate installation of flotation equipment.

The Metaline Mining and Leasing Company of Metaline Falls has announced the continuance of development work to open up additional ore reserves. A special cash reserve of a hundred thousand dollars was provided from a surplus in previous operations to finance this program.

### Engineers Appointed By Arizona Department of Mineral Resources

The recently created Department of Mineral Resources in Arizona, with J. S. Coupal as director, has opened offices in the State Capitol Building at Phoenix. Funds for the new department, creation of which was sponsored by the Small Mine Operators' Association of Arizona, were appropriated by the legislature last January.

The following engineers have been appointed to represent the Department of Mineral Resources in various parts of the state: Carl G. Barth, Jr., Prescott; Miles M. Carpenter, Tucson; Newton Wolcott, Warren; and Elgin B. Holt, Kingman.

# Amendment of National Labor Relations Act

I AM appearing here to present the position of the American Mining Congress in regard to the amendments to the National Labor Relations Act which are now being considered by your Committee. I shall endeavor to review briefly the evidence which has been presented to you on behalf of various mining organizations touching their experience with the working of the Act since its passage in 1935.

Since the Congress has taken upon itself the obligation of legislating nationally for the purpose of outlawing unfair labor practices, it is imperative, if such legislation is to be fair and effective, that this very one sided Labor Relations Act shall be materially changed by amendment. That a workman should have available a ready opportunity for an unbiased decision as to whether or not he or his employer is at fault in the termination of his employment, or in any other dispute concerning his employment, which opportunity he is free to invoke without prejudice or detriment, is unquestioned. It is only those industrial contracts which are fairly made and honestly enforced under fair laws, which give neither preference nor advantage to any group, or to any special interest, which will prove of lasting value. Such laws must be enforced through tribunals to which all who are aggrieved shall have as ready access as have our humblest citizens to the courts of our land. Such tribunals must be adequate in number, judicial in character, having in mind the promotion of justice to all involved if the ends sought by this type of legislation are to be even approximately accomplished. This is your very solemn obligation, and we appear here to give our experience with the past operation of the law and our suggestions as to how it can be bettered. We are glad to be of service in your efforts, and we thank you for the opportunity to appear. We ask of you to give serious consideration to our problems and to do what you can to remove the inequalities and injustices of the present law.

Mining is a business which differs in

## ● *Statement of Donald A. Callahan, Director and Vice President, American Mining Congress, Before the Senate Committee on Education and Labor, May 23, 1939*

many respects from other industrial enterprises. In the first place, it is carried on for the principal part in isolated and detached communities, and in most of these communities it constitutes the only industry and payroll. Mining operations in many places are distant many miles from other settled communities. It is a business which presents many hazards financially and otherwise.

At the present time the business of mining is in a depressed condition subject to many discouraging elements. Metal and mineral prices are low, and demand is very slack. This is due to the stagnant conditions which surround the heavy industries, as most of the products of the mines go into the production of capital goods. Federal and State taxation have grown steadily until the taxing bodies now absorb from one-third to all of the profits of most of our mining enterprises. The Fair Labor Standards Act has caused a great deal of inconvenience and dissatisfaction in the mining industry, not only to the managements but to the men employed. While the minimum wage feature does not affect the industry, the limitation as to hours of employment does very materially. This is for the reason that many of our mining operations are carried on in isolated communities where time hangs heavily upon men who are not employed regularly and also because of the nature of the operation which requires daily shifts of certain duration. I think I may safely say that never in the history of this country has the mining industry been less attractive to those who desire to invest in productive enterprise. This is particularly distressing from a public point of view because national defense relies to a large

extent upon the orderly production of metals and the development of mineral bodies in advance of actual production.

None of the handicaps to which I have previously referred has affected the mining industry as much as has the operation of the National Labor Relations Act. The statements which have been made before your Committee by those engaged in the mining industry have brought many concrete examples to your attention. Permit me to briefly summarize the principal of these:

I

*The disestablishment of many independent unions whose relations with the management over periods of years had been most satisfactory.* Mining, as I have said, is largely conducted in isolated communities removed from industrial centers. Each camp presents special problems of employer-employee relationship. The blanketing of labor under national and international unions makes necessary the bringing in of outside organizers who know little or nothing about the peculiar conditions surrounding employment and who frequently find their only means of enlisting support rests in their ability to convince the employees that they have been very badly treated. The witnesses who have appeared before you have brought to your attention many instances of this method of introducing national and international unionism into our mining camps. May I particularly call your attention to the following:

1. *Alaska Juneau Gold Mining Co., Juneau, Alaska*—Mr. H. L. Faulkner.

Here employees of the company organized as Alaska Mine Workers Union No. 1 in February, 1934, more than a year prior to the passage of the Na-

tional Labor Relations Act. In the hearing on this case there was not a scintilla of evidence that this group consitituted a company union. Nevertheless the trial examiner ordered the company to disestablish this union, and his findings were concurred in by the Board. In the language of Mr. Faulkner, "The majority (of the company's employes) does not yet understand why in a free country they are not allowed to have in that remote place their own local union free from dictation, demands, pressure and claims for financial support from affiliates and parent unions in the States which now keep the men and the management in a perpetual state of uncertainty and uneasiness."

2. In this connection may I also call your attention to the fact that in the case of the *Idaho-Maryland Mines Corporation* in California, the Board ordered the dissolution of the Mine Workers Protective League, an independent union embracing employes of a number of mines of the Grass Valley-Nevada City District which had been organized and had functioned since 1919. The record in this case, which is available to this Committee, shows conclusively that this was not a company union in any sense. I understand that a representative of this independent union may appear later in these hearings, and if so I know that the Committee will give his statement full consideration.

3. *Copper Queen and United Verde Properties*, owned by the Phelps Dodge Corporation at Bisbee, Jerome and Clarksdale, Ariz. In this case, in which final decision has not yet been rendered by the National Labor Relations Board, this question is also involved. I refer you to the statement of Mr. Denison Kitchel which has been placed in evidence with your Committee.

4. *Utah Copper Company, Bingham Canyon, Utah*—Mr. D. D. Moffat.

The statement of Mr. D. D. Moffat, vice president and general manager of the Utah Copper Company, gives a history of most harmonious relations with what was known as the Employees General Committee prior to the passage of the National Labor Relations Act. I commend to your attention the facts stated by Mr. Moffat that, although the company was ordered at a hearing to disestablish the Employees General Committee, at a subsequent election the employes voted nearly 3 to 1 against the International Union of Mine, Mill and Smelter Workers as its representative bargaining agency, notwithstanding that this was the only name which appeared upon the

ballot at the election which was ordered.

5. *Texas Mining and Smelting Company, Laredo, Tex.*—Mr. H. P. Henderson.

Here is a classic example of disruption of employer-employee relationship. This case is still pending upon an intermediate report, and I shall not comment further than to say that should the Free Employees Association at that plant be ordered disestablished it will constitute an example of gratuitous intrusion into employer-employee relationship which would make a farce of the Declaration of Policy contained in Section 1 of the National Labor Relations Act.

## II

*The practice of outside organizers in securing memberships in national and international unions has rested largely upon a program of creating dissatisfaction with working conditions where none existed before. Once a nucleus of this type of union has been established in a camp, tactics of coercion and intimidation have been frequently resorted to to bring about a 100 per cent membership.*

Examples of coercion upon the part of organizers of outside unions appear in practically every statement which has been made to this Committee on behalf of mining enterprises. I particularly call your attention to the following:

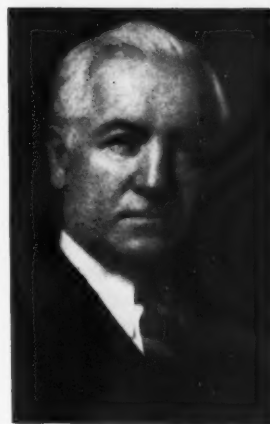
1. *Alaska Juneau Gold Mining Company*—Mr. H. L. Faulkner.
2. *Copper Queen and United Verde (Arizona) properties*—Mr. Denison Kitchel.
3. *Utah Copper Company*—Mr. D. D. Moffat.
4. *Texas Mining and Smelting Company*—Mr. H. P. Henderson.
5. *Nevada Consolidated Copper Corporation*—Mr. Horace Moses.

As to this last I commend to you the statement made by Mr. Horace Moses in which he gives a history of intimidation and threats coupled with unreasonable promises. The conduct of those who sought to organize the employes of this company has been most flagrant.

## III

*The inability of the employer faced with a situation such as has been described, to counsel and confer with men who perhaps have been in his employ for many years and who have personally no desire to change the relationship existing.*

Comparable to the cherished right of a free press, free speech, free religion



DONALD A. CALLAHAN

and the right to petition for a redress of grievances, is the collateral right of free contract between free men.

All of the statements which have been submitted to you by representatives of mining enterprises have complained bitterly of this helplessness of employers in the face of growing conditions of unrest and of bewilderment on the part of hitherto perfectly satisfied employes.

## IV

*The helplessness of employers to secure a real determination of the question of representation of employes in collective bargaining.* It seems to me to be generally agreed by all, and practically assented to by the original author of this Act, that this condition should be remedied.

The statements which have been made to you by mining representatives stress the need of an amendment to submit a determination of the question of representation upon petition of either employers or employes. The mining industry heartily supports the proposals in practically all of the bills which have been introduced to amend the National Labor Relations Act which have this object in view.

## V

*The impossibility under the present law and its administration of arriving at a satisfactory determination of the voluntary choice of employes as to bargaining agencies.* It seems to me that this is the very essence of the Act and should be surrounded with safeguards which will insure a voluntary and intelligent choice of representation. With respect to this I refer you to the following statements which have been made before your committee:

1. *Alaska Juneau Gold Mining Company*—Mr. H. L. Faulkner.



2. *Utah Copper Company*—Mr. D. D. Moffat.

3. *Texas Mining & Smelting Company*—Mr. H. P. Henderson.

4. *Sunshine Mining Company*—Mr. Ross D. Leisk.

## VI

*The necessity for a more fair and orderly procedure in the matter of hearings.* The evidence before you from those witnesses who have told you their experiences proves the tremendous handicap under which an employer is placed in hearings before trial examiners. I cite the following:

1. *Nevada Consolidated Copper Corporation*—Mr. Horace Moses. In this case a complaint was not filed until more than a year after operations were resumed and the alleged unfair practices had been indulged in.

2. *Alaska Juneau Gold Mining Company*—Mr. H. L. Faulkner. The attitude of Examiner Hope, who as regional director of the Board had filed the charges against the company, clearly indicated that he had tried the case before the hearings began.

3. *Copper Queen*—Mr. Denison Kitchel. In this case no charges were filed against the company until almost two years after the strike, which had occurred prior to the passage of the National Labor Relations Act. The company had filled the places of the strikers within two weeks after the strike and had no notice that these employees expected to be reinstated. As a matter of fact, the first complaint was filed by only 10 employees, and later through the activities of the regional director the number was increased to 46. At the hearing it was shown that 23 of these 46 had secured employment elsewhere and had been employed continuously at wages equal to those paid at the Copper Queen mine. Seven hundred employees had testified by stipulation that they would not work with the strikers. Nevertheless the trial examiner held that the company was liable for back pay for 39 employees who had gone on strike prior to passage of the Act.

4. *Texas Mining & Smelting Company, Laredo, Tex.*—Mr. H. P. Henderson. I commend an examination of this statement for the purpose of becoming acquainted with the possibilities for arbitrary and coercive procedure upon the part of the regional director and officers of the Board.

## VII

*The need for speeding up of the machinery of administration, particu-*

*larly when accrual of wages is involved.*

In practically all of the statements which involve hearings and orders of the Board complaint has been made of the delay before final disposition has been made of the case. May I call your attention to the following:

1. *Texas Mining & Smelting Company*—Mr. H. P. Henderson. Hearing was held on this case in February, 1938. The matter is still pending.

2. *Nevada Consolidated Copper Corporation*—Mr. Horace Moses. Although this case involved payment of back pay for 71 claimants from January 1, 1937, and the hearing was concluded on June 13, 1938, the matter is still before the Board upon a brief filed by the company with request for oral argument and there has been no intimation as to when the Board will finally dispose of the case.

3. *Sunshine Mining Company*—Mr. Ross D. Leisk. In this case the order of the Board called for back pay for 216 employees. Notwithstanding the fact that hundreds of thousands of dollars are involved, the Board delayed filing its record with the Circuit Court of Appeals for 10 months. This despite the fact that a serious jurisdictional question is involved.

4. *Copper Queen*—Mr. Denison Kitchel. This case involves back pay for 39 individuals from August 9, 1935. The hearing of this case lasted for only five days and the record is relatively brief. The Board has failed for a period of one year since final submission of the case to render a decision.

I submit that one of the objects of the creation of administrative agencies is to secure speedy administration of the law. Complaint has frequently been made that justice could not be secured in cases involving labor relations were the determination to be left to the slow processes of the courts. In this connection may I call your attention to the tables filed in connection with the voluminous statement of Mr. J. Warren Madden, chairman of the National Labor Relations Board. In Table No. 4 Mr. Madden has attempted to show that the average time required for disposing of cases which have come to the Board for decision after hearing is not more favorable to one international labor union than to another. In doing so he makes this astounding revelation. I am quoting now from page 14 of Mr. Madden's statement: "Table 4 deals with the average time consumed in each stage of unfair labor practice

proceedings filed by the A. F. of L. on the one hand and the C. I. O. on the other. The average length of time it has taken the Board to dispose of cases filed by the A. F. of L. is 262 days, while the average time consumed in disposing of C. I. O. cases is 324 days." If this is the average in representation cases where there are two aggressive organizations seeking early determination of their controversy, what can be said of the time consumed in rendering decisions in cases where perfectly helpless employers are involved. Surely our Federal courts would reach earlier decisions.

The Act should be amended to limit the prohibitive accrual of financial damages during appeal.

## VIII

*Interference by employes with the employer's business.*

This abuse is well illustrated by the sit-down strikes at the Perth Amboy, N. J., plant and the Selby, Calif., plant of the American Smelting and Refining Company as well as the tactics employed at the Tacoma plant of the same company in attempting to secure a 100 percent membership and to promote collection of dues by stopping employes outside the gates of the company's plant. In the Perth Amboy case the strikers seized possession of the plant, and while an agreement was finally entered into the terms were arranged while the plant was still in possession of the strikers, and there is no question but that the terms of the final settlement were affected by this duress.

## IX

*Protection of operations and situations where mining plants are far removed from centers of population.*

In this connection I call to your attention the statements of Mr. Joseph W. Walton, vice president of Hillside Mines, Inc., Prescott, Ariz., and A. C. Mitchell, of Golden Turkey Mining Company, Cordes, Ariz. These two statements well illustrate the difficulties that have arisen in labor relations since the passage of the Wagner Labor Relations Act, particularly as they apply to isolated mining communities. Both of these operations are comparatively small, but they furnish the only pay roll for their communities. The employers, according to the statements referred to, were absolutely at the mercy of roving groups of troublemakers. To quote Mr. Walton, "A new group of agitators appears and starts the same procedure every three months." Describing the situation

with reference to his inability to counsel with his men, Mr. Walton says: "Naturally the feeling has led to a certain amount of distrust on the part of the employer and his employees."

In connection with Mr. Mitchell's statement, may I call your attention to the exchange of correspondence between him and the regional director, Dr. Nylander. Mr. Mitchell inquired of the director as to whether the National Labor Relations Act allowed employers to file charges against labor agitators who disrupted relations between employers and employees when inflexible conditions beyond the control of the employers prevented higher wages in the operation of the business being paid. Dr. Nylander's answer was as follows: "The National Labor Relations Act does not provide for the filing of charges against labor agitators and you will note in section 8, and its various subsections, that the unfair labor practices specified 'unfair labor practices for the employer'."

#### Amendments Proposed

The mining industry respectfully requests this committee and the Congress to amend the Act so as to:

1. Provide a nonpolitical Board which will represent labor, employers, and the public.

2. Provide for a truly voluntary choice of representation and protection from interference, restraint or coercion from any source.

3. Provide that an employer may confer with, counsel or advise employees orally or in writing about any matter within the scope of the Act.

4. Provide that certain practices of labor organizers and labor organizations shall constitute "unfair labor practices" with a view to protecting employers from situations such as have been described by practically every witness appearing here on behalf of mining employers.

5. Provide for limitation of the discretionary power of the Board in the selection of bargaining units, and compel the Board to accept the wish of a majority of the employees.

6. Provide a democratic method of choice of representatives and a free expression of the will of the employees and a prompt determination of representation questions.

7. Provide that either an employer or a minority of employees may raise the question of representation and secure prompt determination.

8. Provide for procedural changes which will conform with those embraced in section 10 (b) of S. 1264,

introduced by Senator Burke. Such an amendment will in my opinion result in the elimination by agreement of many points of controversy and will result in harmonious adjustment of differences without the intervention of hearings by the Board or its agents.

9. Provide for requirement that findings of fact must be based upon the weight of evidence, and that conduct of hearings shall conform more nearly to established procedure in courts of law.

I do not appear here to enter into the controversy which seems to be raging between two great international labor organizations. Despite this high-sounding language of the proponents of what has come to be called different "ideologies" with regard to labor organization, the fact still remains that this is a mighty struggle between strong men who seek to secure power to dictate labor policies throughout the nation. As to that controversy employers must stand aside. Since the Federal Government has undertaken to legislate nationally upon this great subject of labor relations, the public must depend upon their representatives in the Congress to determine the policies which affect these two great militant organizations.

We do, however, protest against the complete elimination of independent unions upon the theory that these of necessity are company controlled. The testimony that has been offered here on behalf of the mining industry clearly demonstrates the value of these independent organizations and shows their practical necessity in the isolated communities where conditions of life and living are wholly dependent upon the contribution of the employers to the physical welfare of their employees. We submit that the attitude of the National Labor Relations Board up to this time has been unreasonable and arbitrary in ordering the disestablishment of independent unions. The amendments proposed by Senator Ellender have the hearty concurrence of those in the mining industry who are obliged to meet the practical conditions brought about by the very nature of their operations.

Neither do we appear here to criticize and abuse the National Labor Relations Board. As a matter of fact, I, for one, am of the opinion that the Board has done just exactly the kind of a job that should have been expected of it when the Act was passed and the powers granted by the Congress placed in its hands. Administrative bodies always do just what the National Labor Relations Board has done, al-

though, perhaps, not so crudely. They live up to the limit of their powers. They reach out and seek more power. They become intoxicated with the idea that they know more about what the duties entrusted to them should be than anybody else. And so, in their self-sufficiency and pride of accomplishment, they constantly extend the frontiers of their jurisdiction and seek control of everything related thereto. Let us not blame these men for being poor, weak human beings. Power such as has been placed in the hands of this Board and its hordes of investigators, regional directors, so-called trial examiners and briefless attorneys will always be abused. This one constant factor of human nature makes it inevitable that history shall repeat itself.

I have one criticism, however, which I must indulge. The National Labor Relations Board and its agents and attorneys have been entirely too prominent and evident at this hearing. The chairman of the Board and its general counsel have taken up a great portion of the time of this committee by presenting statements which must have involved months of research and the labor of many employees of the Government who are paid from public funds. These hearings from the beginning have been crowded with employees of this public body, and hearings in the House have been likewise attended. All the while cases before the Board involving the accrual of back pay have been waiting for examination and decision. Hearings have been delayed and the public treasury, employers of labor, and warring labor organizations have been made to suffer while public servants have been busy preparing a defense of their management of the public's affairs.

I intend to endeavor to impress upon you, as members of this committee, that you are responsible for this entire condition and that there can be no remedy for it unless you accept that responsibility. Every action of the Board which is complained of, every action of agents and trial examiners which is protested against, has been made possible by the committee and the Congress in approving and passing the National Labor Relations Act. This committee of the Congress, I am certain, will not shirk that responsibility, but will seek to remedy the mistake it made in 1935.

If we are going to continue to have government by administrative bureaus the Congress must examine periodically the conduct of those agencies and open-mindedly seek to correct mistakes and check abuses of power and discre-

tion. If, as some people think, it is necessary to carry on a considerable portion of the public business through administrative agencies, then the responsibility of the Congress grows instead of diminishes. Unless we are ready to abolish the democratic principle which places in the hands of the people the selection of the Congress which is to determine our public policy, we must insist that Congress and its important committees exercise a strict supervision over these creatures of its will who are bound to extend their powers farther than the Congress intended.

Let me call your attention to one fact that is not generally known and which illustrates well what I have been trying to impress upon this committee as to the abuses of power upon the part of this administrative body. The figures that I am going to quote you are based upon an examination of cases in the United States Supreme Court and the Federal Circuit Courts of Appeal from the time the Wagner Act was passed until May, 1939. In its cases involving the sufficiency of the evidence to support the decisions of the National Labor Relations Board the Supreme Court has held the evidence sufficient in five cases and not sufficient in three. The Circuit Court of Appeals throughout the country has held in 46 cases that evidence was sufficient in 28 and not sufficient in 18. Now let me make a comparison. Students of legal research have ascertained that on the average 75 percent of the cases appealed from trial courts to appellate courts are finally affirmed and 25 percent reversed. The results of this study are to be found in J. M. Gest's "The Trial of Judge Bridle-goose," 71 United States Law Review, page 503. Compare this with a record of almost 40 percent of reversals of findings of fact alone by the National Labor Relations Board although the statute prohibits the reviewing courts from disturbing the Board's findings if there is any substantial evidence to support them. I am of the opinion that this is very potent evidence that there is something very wrong with the administration of this law under the charter granted to the National Labor Relations Board by your committee and by the Congress.

I do not appear here on behalf of the mining industry to ask you or the Congress to take a backward step in the matter of encouraging the practice and procedure of collective bargaining and of protecting the exercise by workers of a full freedom of association for organization and designa-

tion of representatives of their own choosing for the purpose of negotiating the terms and conditions of their employment or other mutual aid or protection. I realize the inequality of bargaining power between employees who do not possess full freedom of association or actual liberty of contract and employers who are organized in the corporate or other forms of ownership association.

But I insist that the administration of this Act does not promote collective bargaining, but rather hinders and delays it. Take the case of the Golden Cycle Mining Company which Mr. Strickler has told you about. They cannot even obtain leave to file a brief, because the Board and its attorneys and agents are too busy with this hearing in order to protect their precious jobs. In case after case, long drawn out proceedings delay action in matters upon which employers and employees could have readily agreed in a few hours, did not the agents of the Board hold out the rosy hope of securing benefits which are never realized. Take the statement of the chairman of the Board, Mr. Madden, and figure out for yourself how slow this ponderous, topheavy organization has acted in the business which you gave them to do. You cannot blame employers, for their appeals for relief have gone unheeded. You must put the blame squarely where it belongs—on the law itself and its inept administration.

I come on behalf of those who from the employers' side have had actual experience with the working of this Act and its administration through the agencies which you have set up. I come on behalf of an industry which profits through harmonious relationships with employees. I come on behalf of an industry which made grave pecuniary sacrifices during the depression to provide jobs at living wages for its employees. I come on behalf of an essential industry, essential not only in times of peace in this metal and mineral age but doubly essential should our nation be called upon to defend itself in war. I come on behalf of an industry which is suffering materially from the general stagnation of capital-goods industries. I come to point out to you wherein this law has contributed to unrest, to dissatisfaction among employees as well as employers, to disruption of friendly and satisfactory employer and employee relationships and to pecuniary loss suffered through the interference of roving trouble-makers in the affairs of peaceful operations.

In doing this may I call your attention to the fact that throughout that section of the country in which I live there is a rising tide of resentment against what is called "labor dictation." That sentiment is not confined to industrial areas. It is manifest even more strongly throughout our agricultural sections. May I recall to you the language of Senator Holman, of Oregon, in appearing before your committee when he said: "The reason I am in the United States Senate today is because I was the first public man in Oregon to make a law-and-order speech when these racketeers had the state by the throat. That does not mean the labor—it means the men who are exploiting labor and making this trouble and destroying industry, and they have found a haven, in my opinion, under the Wagner Labor Relations Act as written and now administered."

In this connection may I call your attention to the fact that the State of Oregon, once a bulwark in the union labor movement, by a majority vote of its citizens last fall placed a law upon the Oregon statute books which surrounds union labor with the greatest restrictions ever placed upon it anywhere in this country. May I call your attention also to the fact that in my State of Idaho last winter the legislature, composed of farmers, small business men and professional men, passed an anti-picketing law which would have tremendously crippled organized labor in any attempt to correct what it considered injustices through means of strikes and picketing. Let me call your attention also to the anti-picketing ordinance of Los Angeles. Coming back to my own state again, an anti-picketing ordinance now is in force in the city of Lewiston, Idaho, a little town of 10,000 people. Throughout the entire western country a wave of revolt against conditions which are encouraged by the National Labor Relations Act and its present administration is growing and expanding.

You cannot build a permanent structure of friendly, cooperative labor relations upon a foundation of fear and force. The old order of employer domination which passed years ago, and which disregarded the inherent human rights of the workers, cannot be supplanted by a new order of domination by powerful labor organizations which is fostered by this Act. The same type of man now is in command of the great labor groups that once ruled great business organizations and was called "a captain of



industry." If the day of the former has passed, it is not hopeful to see his place taken by the modern "captain of men," who rules his empire of human labor in the same manner that the giants of our industrial development ruled their kingdom.

Perhaps you recall the convention of small business men held in Washington a little over a year ago. It may have been that this was not an orderly body in the sense that it had a definite cut-and-dried program. To my mind, it represented the very essence of democracy. It was a gathering of men unhampered and uninstructed who came together to present to their National Government, through petition, the grievances from which they believed themselves to be suffering. In that body of representative Americans there was one note that was scarcely challenged during its deliberations, and that was that the National Labor Relations Act was a tremendous deterrent to the successful operation of small business. I want to emphasize that note, to say to you that small business throughout the nation has come to recognize that fact. Large industrial enterprises can and do protect themselves. Small business, and I believe that that type of business is the very backbone of this nation, is utterly helpless when organized groups lay down the rules which must govern it in its relationships with its employees.

One of the present objectives of Congress of which there is much discussion is that of removing business deterrents to the flow of private capital into new industry, thereby bringing about an increase in the income of our people. It is sought by this means to reduce unemployment as well as to increase income which will provide revenue with which to meet the tremendously increased costs of our National Government. I am in entire sympathy with those who state that

the present Federal tax structure presents an almost insurmountable obstacle to investment of capital funds. I am in entire accord with those who feel that the administration of the Securities and Exchange Act is driving those seeking capital to the large financial centers and seriously hampering the flow of ordinary capital savings into the channels of investment. We in the mining sections of the country feel this tendency very particularly.

But of all of these business deterrents, none is more powerful than the labor situation of today, and nothing is contributing to this difficulty more than the Labor Relations Act, its administration and the war between rival labor groups for mastery. The mining industry, as well as all industries in the United States, has been built upon the willingness of men to take risks in investment of capital, and nothing will ever restore real prosperity and reduce unemployment in this nation until that spirit is revived again. May I in closing urge upon you to consider your full responsibility in so amending this Act which controls the destinies of all the workers that industry and labor, twin giants, which have made our great progress possible, shall live once more in harmonious relationship. You can do this by providing for a Board which will administer this Act with due recognition not only of the rights of both parties but of a third party, the great American public, which is vitally concerned in our industrial prosperity. This Act has been called the Magna Charta of labor. It has therefore been likened to a great instrument wrung from an unwilling, tyrant king. May I remind you that the Magna Charta signed by King John did not alone guarantee rights to the barons who forced its signing, but was in fact a charter of liberties for all who lived within the realm. So should this Act

dealing with labor relations become a great charter of industrial freedom, guaranteeing protection to all concerned in our industrial organization, whether they be employers, employees or the great public which depends upon the orderly production of the necessities and comforts of American life.

About 500 years before the coming of Christ, Solon, the greatest legislator of all time, undertook a revision of the laws of Greece. He had come at a time when the progress of that great state had entered upon evil days, and he was confronted with the same governmental and social problems which have periodically disturbed peoples at various times in all parts of the world. His was one of the earliest expressions of the idea upon which this nation is founded of dividing the functions of government into legislative, executive and judicial departments. The outstanding admonition contained in his revered and classical teachings is "nothing too much."

Let me commend to this committee Solon's own summary of his efforts in reforming the laws of Greece:

"To the people I have given just as much power as suffices, neither taking away from them their due nor offering more; while to those who have power and were honored for wealth I have taken thought likewise, that they should suffer nothing unseemly. I stand with strong shield flung about both parties and have allowed neither to win an unjust victory."

It is my abiding hope that in this grave law-making duty which has been placed upon you this wise course of this great legislator will be considered in your counsels and that you, too, will "stand with strong shield about both parties" in determining the rights and duties of employers and employees in their relationship toward one another.

### Christopher Acquires Mine

Sale of the physical assets of the Lincoln Gas and Coal Company, including the Lincoln mine in Washington County and the Lincoln Supply Company, to Frank E. Christopher and associates of Morgantown, W. Va., was recently announced by Walter J. Curley, president of the Lincoln Company.

The various Christopher Mining Companies are affiliated with the Pittsburgh and Fairmont Coal Company of Pittsburgh, of which L. H. Kelly is president. It was announced by Kelly that the same interests also have acquired and taken over the

Osage mine of the Pioneer Mining Company of West Virginia, and that sale of products of both properties will be handled by the Pittsburgh and Fairmont Coal Company from their general offices in Pittsburgh.

### Missouri Students on Long Field Trip

Professor C. R. Forbes and 14 seniors left Rolla on Sunday, May 7, for a two-weeks' trip through the mining districts of Missouri, Arkansas, Tennessee, Alabama, and returning through Illinois. The trip covered approximately 2,160 miles, and the properties visited included those of the St. Louis Smelting and Refining

Company at Baxter Springs, the Athletic Mining and Smelting Company at Fort Smith, Ark., the Republic Mining and Manufacturing Company at Bauxite, Ark., Muscle Shoals and Wilson Dam, the Fairfield Steel Plant of Tennessee Coal, Iron and Railroad Company at Birmingham, the Muscoda No. 6 Iron Mine and Limestone Mine, the Tennessee Copper Company at Ducktown, Tenn., the American Zinc Company at Mascot, Tenn., the Rosiclare Lead and Fluorspar Company at Rosiclare, Ill., the Crystal Fluorspar at Rosiclare, and the Sahara Coal Company at Harrisburg, Ill. The group returned to Rolla on May 19.



H. C. BACORN



H. G. WASHBURN



HORACE MOSES



D. I. HAYES



ERROL MacBOYLE



F. S. MULOCK



W. A. CASTLETON



E. E. HUNNER

## Committee Meets to Draft Metal Mining Convention Program

GEORGE H. RUPP  
National Chairman

FRED E. GRAY



W. R. DICE



LEVERETT DAVIS



JOS. W. WALTON



J. D. JOHNSON



BRENT N. RICKARD

**P**RELIMINARY plans are now well advanced for the sixth annual Metal Mining Convention and Exposition of the American Mining Congress, Western Division, to be held in Salt Lake City, Utah, August 28-31. Organization of committees is virtually complete, and the members have doffed their coats, rolled up their sleeves and are now "hitting the ball" in earnest to complete a full week's program for all visitors that will be nothing less than "tops." George H.

Rupp, manager of the mining department of the Colorado Fuel and Iron Corporation, as chairman of the General Program Committee, is heading the activities of 16 state and district committees chairmanned by the following men, most of whom are shown above:

*Alaska*—W. A. Castleton, Castleton & Keenan, Seattle, Wash.; *Arizona*—Jos. W. Walton, Vice Pres., Hillside Mines, Inc., Prescott; *California*—Errol MacBoyle, Vice Pres., Idaho

*Maryland Mines Corp.*, Grass Valley; *Central and Eastern States*—W. R. Dice, Exec. Vice Pres., The Eagle-Picher Lead Co., Cincinnati, Ohio; *Colorado*—Robert H. Sayre, Pres., Veta Mines Corp., Denver; *Idaho*—H. G. Washburn, Gen. Mgr., Federal Mining & Smelting Co., Wallace; *Lake Superior District*—E. E. Hunner, Gen. Mgr., M. A. Hanna Co., Duluth, Minn.; *Montana*—H. C. Bacorn, Pres., Cable Mining Co., Butte; *Nevada*—Fred E. Gray, Gen. Mgr., Desert

Silver, Inc., Silver Peak; *New Mexico*—Horace Moses, Gen. Mgr., Chino Div., Nevada Cons. Copper Corp., Hurley; *Oregon*—Leverett Davis, Vice Pres., Cornucopia Gold Mines, Cornucopia; *South Dakota*—J. D. Johnson, Chief Engr., Homestake Mining Co., Lead; *Texas*—Brent N. Rickard, Mgr., El Paso Smelting Works, American Smelting & Refining Co., El Paso; *Tri-State District*—Charles A. Neal, Secy.-Treas., Cardin Mining & Milling Corp., Miami, Okla; *Utah*—F. S. Mulock, Vice Pres. and Gen. Mgr., U. S. Smelting Refining & Mining Co., Salt Lake City; and *Washington*—D. I. Hayes, Western Mgr., American Zinc, Lead & Smelting Co., Spokane.

Cooperating closely in this work is D. D. Moffat, vice president of the Utah Copper Company and chairman of the Board of Governors of the Western Division of the Congress, which sponsors these annual meetings in the West.

Several of the state or district committees have held meetings recently to discuss important subjects that merit presentation at the convention sessions, and other groups have performed this function effectively by obtaining by mail, similar suggestions from prominent mining men who are committee members. Manufacturers of mining equipment, who participate actively in the exposition which is part and parcel of the meeting, have likewise submitted their recommendations as to outstanding operating problems facing the industry today.

Laden with literally hundreds of these valuable suggestions, many of the state chairmen and other prominent leaders in western mining gathered together in Salt Lake City, on June 6, to run through these with a fine tooth comb and make their final selections of subjects and speakers for the convention program.

General subjects chosen, to be presented by noted mining leaders, industrialists, and men prominent in national affairs, include: labor problems; taxation and government finance; the financing of mining properties; legislation affecting mining; prospects for the metals; monetary questions; strategic and critical minerals;



JAMES W. WADE  
Chairman, General Arrangements Committee

tariffs and foreign trade; safety and health; and mining and metallurgical problems of general interest.

Present at the Salt Lake meeting were: George H. Rupp, *Colorado Fuel & Iron Corp.*; Carl E. Trauerman, *Mining Association of Montana*; Charles F. Willis, *Arizona Small Mine Operators' Assn.*; F. S. Mulock, *U. S. Smelting, Refining and Mining Co.*; D. D. Moffat, *Utah Copper Co.*; James Ivers, *Silver King Coalition Mines Co.*; Henry M. Rives, *Nevada Mine Operators' Assn.*; Fred E. Gray, *Desert Silver, Inc.*; D. I. Hayes, *American Zinc, Lead & Smelting Co.*; Oscar N. Friendly, *Park Utah Cons. Mines Co.*; Leverett Davis, *Cornucopia Gold Mines*; James W. Wade, *Tintic Standard Mining Co.*; A. G. Mackenzie, *Utah Chapter, American Mining Congress*; B. B. Brewster, *Mining and Contracting Review*; Neal Snyder, *Snyder Mines, Inc.*; A. B. Young, *International Smelting & Refining Co.*; C. T. Keigley, *Utah Division, Columbia Steel Co.*; W. J. O'Connor, *American Smelting & Refining Co.*; Gloyd M. Wiles, *Park City Con-*

*solidated Mines Co.*; Julian D. Conover and P. D. McMurrer, *American Mining Congress*.

Of equal importance in the successful functioning of the convention is formulation of plans and proper handling of arrangements to insure an entire week of comfortable surroundings and pleasant relaxation to all guests. It is a pleasure to announce that James W. Wade, vice president and general manager of the Tintic Standard Mining Company, will direct this work as chairman of the General Arrangements Committee. He will be assisted by chairmen of various committees in charge of specific functions and a corps of helpers, the full roster of which has not as yet been completed as we go to press.

Once again the huge arena of the Minerals Building at the State Fair Grounds will be metamorphosed into a mammoth show case of latest developments in metal mining equipment and supplies, assembled by leading manufacturers from far and near. This Exposition has become an integral part of these western meetings, and its value is attested by the phenomenal growth in interest from both operators and manufacturers during the five years it has been held. Scheduled to be shown on the floor are literally hundreds of cost-cutting machinery and supply items running the entire gamut of modern mine and mill operation.

Expert representatives of the manufacturers will be in each booth to discuss new methods of solving baffling operating problems, thus affording mining men an unparalleled opportunity to study the hundreds of displays and obtain first-hand knowledge of the up-to-the-minute practices.

With three-quarters of the available space already reserved at this early date, a complete sell-out is virtually assured.

The scenic charms of Utah and surrounding states will be particularly inviting at this time of year, and it is only an over-night trip from Salt Lake City to beautiful Treasure Island and the Golden Gate International Exposition.

Plan now for a full week of education and fun at Salt Lake City, Aug. 28-31.







# NEWS and VIEWS

## Full Safety Program Presented at Mine Inspectors Meeting

Safe operation of conveyors and mobile loaders, a campaign to reduce accidents from falls of roof and coal, and the subtle effect of rating inspections in reducing accident prevention was described, considered and discussed at the thirtieth annual coal convention of the Mine Inspectors' Institute of America, held at the William Penn Hotel, Pittsburgh, Pa., June 5, 6 and 7.

Welcomed by Thomas Moses, vice president, United States Steel Corporation of Delaware, the meeting was addressed on Monday, June 5, by Howard N. Eavenson, Eavenson, Alford and Auchmuty, on the history of the coal industry of Pennsylvania, followed in the afternoon by addresses on the State Mining Department as an educator by P. A. Grady, general superintendent, Carrs Fork Coal Co., and on safety practices in the submarine coal fields of Nova Scotia, where coal is being mined as far as three miles out under the sea. This latter address was delivered by A. E. Cameron, deputy minister of mines, Department of Public Works and Mines, Province of Nova Scotia and by T. J. Casey, one of his inspectors.

Hazards of working with conveyors and mobile loaders with the means of circumvention were discussed by Carel Robinson, consulting engineer, who described the operation of units and the training of personnel; A. W. Hesse, mining engineer, Buckeye Coal Co., who described warning devices for indicating roof defects that may result in disaster, and Dr. W. P. Yant, director of research, Mine Safety Appliances Co., who detailed the devices that have been developed to indicate the presence and quantity of dangerous gases in the mines.

A campaign to reduce mine accidents from falls of roof and coal was elaborated by S. J. Philips, a state inspector in the anthracite region and by James McSherry, director of the Department of Mines and Minerals in Illinois.

How the rating for compensation based on compliance with certain stringent safety rules, inspections to determine such compliance and the mental reactions to compensation costs and inspection effect accident reduction were explained by R. N. Hosler, superintendent, coal mine section, Pennsylvania Compensation Rating and Inspection Bureau, H. G. Houtz, mining engineer, West Virginia De-

partment of Mines, and F. E. Bedale, assistant to the vice president, Consolidation Coal Co. Describing lessons to be learned from recent mine explosions—a high light in the convention—George W. Grove, mining engineer, safety division, U. S. Bureau of Mines, concluded the sessions.

Entertainment included an inspection of the plant of the Mine Safety Appliances Co., a night boat ride down the Ohio River on Tuesday and a trip to the experimental mine at Bruceton, Pa., with the annual banquet on Wednesday.

## Mines Finance Commission Urged

Setting up of a new commission by the Federal Government, designated as the Mines Finance Commission, to handle so-called Class C loans, is strongly urged by the Yavapai County Council of the Arizona Small Mine Operators Association.

The new commission, headed by three commissioners, would be set up in one of the principal metal mining states, and loans would be extended to all classes of metal mines. Loans restricted to \$5,000 would be made to any one borrower, after which if the property merits, application can be made for the "B" or "A" loans through the Reconstruction Finance Corporation. Repayment of the loan would be by means of a 15 percent royalty on the net smelter, mill or mint return.

Funds up to \$150,000,000 would be derived from the present stored earnings of the mines themselves through the issuance of silver certificates.

Purposes of the small Class C loans have been listed as follows: To develop raw prospects of probable merit, unwater old workings for examination and sampling, catch up and re-timber caved properties for examination and sampling, sample and report on meritorious mining properties, and furnish funds for placing meritorious properties in shape for RFC loans or private capital where all or any of the above is necessary.

## Graham Elected President of Virginia Operators Association

The annual meeting of the Virginia Coal Operators' Association was held May 17, at which the following officers were elected for the coming year: President, R. S. Graham, president of Kemmerer Gem Coal Company and vice president of Wise Coal and Coke Company; vice president, J. D. Rogers, vice president of Stonega Coke and Coal Company; secretary-treasurer, George H. Esser; and assistant secretary-treasurer, E. H. Robinson.

All directors were reelected, including J. L. Osler, P. F. Brown, Charles E. Ralston, J. P. Shockey, J. J. Sellers, Lee Long, J. D. Rogers, R. S. Graham, and W. H. Sienknecht.



Howard I. Young (center), president of the American Zinc, Lead & Smelting Co. and president of the American Mining Congress, receiving the honorary degree of Doctor of Engineering from President F. A. Middlebush, of the Missouri School of Mines, at the commencement exercises held in Rolla, May 23. Mr. Young also delivered the commencement address, which will appear in the July Journal. Wm. R. Chedsey, director of the school, is at the left.

## WPA Mine Sealing Program Has Reduced Acid Pollution in Ohio River Basin 25%

Mine acid drainage, one of the more serious forms of water pollution referred to by President Roosevelt in a recent message to Congress, is responding measurably to preventive treatment applied under the mine sealing program of the Works Progress Administration.

On the basis of field reports summarizing accomplishments of the program up to December 31, 1938, it is estimated that sulphuric acid drainage from all coal mines, active and inactive, in the Ohio River Basin has been reduced 25 percent in the last six years. In individual regions, acid pollution of streams and rivers has been reduced as much as 90 percent by sealing abandoned mines and restricting the flow of acid from those still in active operation.

In the Monongahela River alone, principal water source for such cities as Pittsburgh and Morgantown, the sulphuric acid content has been reduced approximately 30 percent. Many of the streams in this great watershed are now wholly free of acid.

The WPA mine sealing program has been in operation since the fall of 1935. As of the end of 1938, according to reports submitted to Colonel Harrington, a total of 4,123 mine sealing units had been completed. This involved the closing of more than 115,

ACCOMPLISHMENTS AND TOTAL EXPENDITURES, SEPTEMBER, 1935, TO DECEMBER, 1938, OF MINE SEALING PROGRAM

State	Accomplishments			Total Expenditures
	Complete Mine Units Sealed	No. Openings Sealed	No. Mines Surveyed	
Alabama .....	66	1,188	160	\$137,113
Illinois .....	...	...	112	2,215
Indiana .....	142	2,480	327	207,198
Kentucky .....	696	3,767	1,552	338,472
Maryland .....	24	500	444	101,062
Ohio .....	2,125	49,137	4,289	1,791,452
Pennsylvania .....	635	50,975	6,737	2,813,538
West Virginia .....	435	7,439	3,461	976,038
Total .....	4,123	115,486	17,082	\$6,367,096

000 principal drifts, air shafts, surface breaks and other incidental openings to exclude air and water from the mines. Overall cost of the program in that period was \$6,367,096 provided chiefly out of WPA funds. Employment has been furnished several thousand jobless miners, the only type of workmen experienced enough to undertake such hazardous work.

Oxygen is necessary in the chemical reaction which produces sulphuric acid in coal mines. Water alone will not do it. Hence, if air is excluded from the mine, the acid will not form. This is the principle on which mine sealing is based.

Abandoned mines are first surveyed to determine the number and location of all portals, air shafts, cave-ins,

and other openings through which air might enter. There frequently are as many as 100 to a single mine. Each of these must be closed. At the principal entry to the mine a brattice, or masonry wall, is built, completely sealing the opening on all sides with the exception of a small aperture at the bottom. A water trap is then constructed around this aperture which resembles an open box about three feet square with the top edge a foot or two above the level of the aperture. This permits the accumulated water to flow out of the mine but prevents air from flowing in. In time, the air sealed within the mine exhausts its oxygen and as no appreciable quantities of new air can enter, acid production ceases.

## Mining Machine Company Head Dies

CHARLES H. STRAWBRIDGE, 66, president of Goodman Manufacturing Company, died at his home in Chicago, Ill., May 15, after a brief illness. Mr. Strawbridge had been associated with the company 39 years, having been appointed secretary in 1900. In 1906 he also became treasurer and in 1913 a director. He was elected vice president in 1918, in which capacity he served until he became president in 1923.

Toward the industry in which he was engaged, he developed a broad and comprehensive understanding. His administrative duties included the guidance of the company's trade relations to the industry, and he won recognition for his contributions to the various trade groups of which he was a member.

Mr. Strawbridge served on the executive committee of the National Metal Trades Association for several years, and was president of that body from May, 1936, for two years. He was a member of the Electrical Manufacturers' Club and held various offices in the National Electrical Manufacturers' Association, having acted as chairman of the law committee in addition to being vice president and member of the board of governors.

At the time of his death, Mr. Straw-

bridge was a director of the Illinois Manufacturers' Association, and a trustee of Armour Institute of Technology, Chicago. In addition, he served as a director of the Union Special Machine Company and Columbian Bank Note Company, both of Chicago, and Superior Steel and Malleable Castings Company, Benton Harbor, Mich.

## Mine Standardization Work

Dan Harrington, chief of the Health and Safety Branch of the U. S. Bureau of Mines, has been re-elected chairman of the Mining Standardization Correlating Committee. This committee is in charge of the ASA mining standards program.

Lucien Eaton, American Mining Congress, and Rush N. Hosler, representing the Coal Mining Institute of America, have been re-elected to serve as vice chairmen.

Other members of the Executive Committee of the MSCC are: E. A. Holbrook, representing the American Association for Labor Legislation; N. P. Rhinehart, representing the Mine Inspectors Institute of America; and G. B. Southward, of the American Mining Congress.

A revision of the standard for Rock Dusting Coal Mines is being prepared by the American Institute of Mining and Metallurgical Engineers, and will be considered by the ASA sectional

committee when it is completed. The Sectional Committee on Rock Dusting Coal Mines is now being reorganized.

A standard defining varieties of bituminous and sub-bituminous coals, which will round out the work of the sectional committee on Classification of Coals, is being completed and will be submitted to the American Standards Association for approval in the fall. This standard has already been approved as a tentative standard by the American Society for Testing Materials, which has the administrative leadership for the work of the committee. Three other standards on coal classification have been approved by the American Standards Association:

Specifications for Classification of Coals by Rank (M20.1-1937; ASTM D 388-37)

Specifications for Classification of Coals by Grade (M20.2-1937; ASTM D 389-37)

Method for Designating the Size of Coal from Its Screen Analysis (M20.3-1938; ASTM D 431-38)

A study of the installation and operation of underground transmission lines, which may be useful in connection with work of an ASA committee on Specifications for Trolley, Storage Battery and Combination Type Locomotives for Coal Mines, has been started by the Power Committee of the American Mining Congress Coal Division. The study will probably take several months to complete.

## **Cold Mine Operations Resumed at Charlotte**

With resumption of operations on an enlarged scale at the Capps Hill gold mine scheduled to take place at an early date, Charlotte, N. C., will soon become the gold mining center of this part of the country.

A Charlotte attorney, John James, was recently appointed permanent receiver of the Capps Hill mine, which has been idle for some time. Appointment of a permanent receiver opens the way for operations under lease of the ore processing plant at the mine.

The ore mill, according to Mr. James, will be operated on a custom basis. Under the company's plans, the ore mill should be operating early in May, and continued operation will liquidate the company, so that the receiver may retire and turn the mine and mill over to the original Capps Hill Gold Mine Company.

Operation of the mill is assured by the blocking out of bodies of ore in this section. This ore is assayed high enough to make its mining and milling profitable, according to authorities who have studied the situation.

Formation plans of the company which will lease the mine are already before the Securities Exchange Commission, and all stock has been assured of subscribers. The Capps Hill company was originally organized by Toronto, Canada, interests who have already invested more than \$500,000 in the mine.

## **Dr. Sayers Speaks to Kanawha Operators**

Representatives of mines in the Kanawha coal fields in West Virginia heard an address by Dr. R. R. Sayers, senior surgeon in the industrial division of the U. S. Public Health Service, at a meeting of the Kanawha Valley Mining Institute held in Montgomery April 14.

The sessions were held in Colony Hall in New River State College, and included a talking picture "Safety Meets in West Virginia," which was shown by a representative of the U. S. Bureau of Mines.

The subject of Dr. Sayers' talk was "Personal Hygiene." C. O. Morris is secretary of the Institute.

## **Work On Mine Certification**

The West Virginia Department of Mines is expected to begin issuing applications for the certification of miners in May, although there is little expectation of completing the job before January 1.

Under a law passed by the 1939 legislature, miners desiring work must be certified by the Department as having a good work record and at least six months' practical experience. It is expected that the law will cover about 100,000 workmen.

## **AN ABUSE OF PRESS FREEDOM**

ON MAY 29 a prominent metropolitan daily printed a story indicting the Tri-State lead-zinc mining industry for tolerating barbarous working conditions. The tale was based on a photographic display and remarks of one Sheldon Dick, a photographer who had visited the Tri-State district in the service of the National Committee for People's Rights.

He described living conditions as scandalously unsanitary, referring to the main street of one of the mining towns as "the street of the walking dead." He represented the state governments as lacking workmen's compensation and health laws and the mine operators as cruelly indifferent to the health and safety of their employees. He stated that medical examinations are conducted as a means of black-listing miners who become silicotic.

How far these claims are from the truth is indicated in the following statement to the MINING CONGRESS JOURNAL by Evan Just, Secretary of the Tri-State Zinc and Lead Ore Producers Association:

"I have never seen a more vicious distortion of facts than in the story printed by the *World-Telegram* on May 29. It is true that a number of destitute people live in the vicinity of Picher, Okla., and there are many examples of degradation and squalor such as exist in the slums of a large city. The incidence of tuberculosis is high and difficult to correct because of the refusal on the part of the victims or their families to cooperate in prevention. This condition has existed since World War boom days when the great activity resulting from military demands for zinc and lead attracted thousands of transients to our district. These people and their numerous progeny, many of whom are mentally or physically unsuitable for employment in mining, constitute a grave local social problem, but to blame their condition on the mine operators is a gross calumny.

"For many years our Association, and the Zinc Institute before it, have supported a welfare nursing program to assist the destitute without charge and without discrimination. An incalculable amount of good has been done, but naturally the basic situation can only be alleviated and not cured by such activity.

"For several months Communists led by Max Salzman, their chief organizer in Kansas and western Missouri, and aided by a group of sympathizers from New York, have been seeking to create a so-called

health survey of our area as the basis for another nationwide scandal similar to a West Virginia incident of a few years ago. Their intention is not to aid our unfortunates, but to break down the public faith in private enterprise by magnifying the evils and blaming the whole condition on negligent, stony-hearted employers. In such a place, by using picked examples, impressive photographic evidence can be built up to support a distortion of the truth. That the intention of these New York parties is mischievous rather than sincere is evident from the distance they travel to find examples of poverty. Were they primarily anxious to correct ignorance and misfortune, there is an ample field for them and their children and grandchildren in the slums of their own city.

"All three of our states have modern workmen's compensation acts which compel participation by the mining industry.

"The ore bodies of the Tri-State District contain a siliceous gangue material which makes silicosis a natural hazard. Concern of operators over this question has been shown ever since the cause of silicosis has been understood. As early as 1915 the Bureau of Mines conducted a survey of dust conditions in the Joplin mines. In 1923 a more complete investigation was made in the Picher Field. Shortly after, one of the Bureau engineers, Richard Age-ton, was engaged as Safety Director for our Association, and did a monumental piece of work in advancing accident prevention and dust control. In 1925 the Bureau of Mines, the Metropolitan Life Insurance Co. and our Association jointly established the Picher Clinic, which operated until 1932 and made important contributions to present day knowledge of silicosis. From 1932 until the present year a group of the mine operators maintained the Tri-State Industrial Examining Bureau, not as Mr. Dick would have us believe as a means of blacklisting men, but as a pre-employment and employee examination agency, in accord with practice recommended by authorities in dust diseases.

"For over two years, our Association has analyzed the air and made dust counts in the mines and mills. The Bureau of Mines midget impinger and recommended technique is used, with a permissible limit of five million particles per cubic foot, the most conservative ever authoritatively proposed. When faulty conditions are found they are immediately reported and quickly corrected. The principal obstacle to complete elimination of excessive dust today is the difficulty in obtaining sincere cooperation of the workmen in protecting themselves.

"Personally I think it is an abuse of the traditional freedom of the press when an editor abets irresponsible people in spreading such false publicity. It is not only a great injustice, but it tends to discourage parties who are striving for constant improvement of working conditions."



## Coal Suspension Ended By New Wage Agreement

After two full months of negotiations, a six weeks' suspension of operations at coal mines throughout the Appalachian area and about one week when all U.M.W. miners in the U. S. were out on strike, a new wage agreement was signed in New York, May 13, and resumption of operations at coal mines began on May 15. The new contract, and others since negotiated separately with other operators and groups, recognizes the U.M.W. as the exclusive bargaining agent of the men, and makes membership in the U.M.W. a condition of employment.

Signatories to the agreement made at the final general meeting of the conference included only 15 of the 21 customary groups, and these signed with reluctance only after strong pressure had been exerted by the Administration in support of U.M.W. President John L. Lewis' demand for the closed shop. The long stalemate that developed after April 1 revolved about the demand of Lewis for elimination of the penalty clause in the new agreement. When the Labor Department and White House entered the picture early in May supporting a completely protective closed shop paragraph in the contract, Mr. Lewis quickly dropped the demand for eliminating the penalty clause and concentrated his efforts on the "union shop" provision.

The unit rule, under which the conference had operated so successfully for some 50 years, was technically upheld only through the resignation of six operators associations in the southern high volatile fields; five of these have since signed similar agreements separately. It has been predicted by many close observers, however, that the conference had met for the last time under the unit rule, and that northern and southern groups would develop into separate organizations.

Text of the controversial "union shop" clause plus an accompanying explanatory note concerning managerial privileges, which was made a part of the agreement, are as follows:

"It is agreed that the United Mine Workers of America is recognized herein as the exclusive bargaining agency representing the employees of the parties of the first part (the signatories). It is agreed that as a condition of employment all employees shall be members of the United Mine Workers of America except in those exempted classifications of employment as provided in this contract."

"The amendment to the enabling clause of the Basic Agreement, covering recognition of the United Mine Workers of America, does not change the rules or practices of the industry pertaining to management. The United Mine Workers intend no intrusion upon the rights of management as heretofore practiced and understood."

## Coal Commission Abolished

Abolition of the National Bituminous Coal Commission and transfer of its functions to the Secretary of the Interior was one of the most important features of President Roosevelt's reorganization plan No. 2, transmitted to Congress early in May and approved shortly thereafter by the Senate. The plan will become effective July 1.

Following a period of orientation in the Commission after the order was received, it was decided to carry on with work of price-fixing and finish as many steps as possible before going out of existence. In an effort to expedite the transfer and to carry the work along with a minimum of confusion, it is understood that advisors of Secretary Ickes have conferred at length with officials of the Commission regarding procedure and plans in connection with the reorganization.

Further extended delay, however, in establishment of minimum prices is a foregone conclusion. Considerable discussion revolves around the legality of a procedure whereby Secretary Ickes would simply carry along where the Commission left off—a point that would surely be challenged in court. If the entire work had to be done over again, it would appear extremely doubtful if prices ever would be fixed.



Miners wearing WHEAT Cap Lamps at New Brunswick Shaft, Idaho-Maryland Mines

## SAFER, STEADIER LIGHT for One of the West's Largest Gold Mines

Idaho-Maryland Mines has purchased and installed 350 WHEAT Electric Cap lamps in its Grass Valley mines so that underground men can have bright, unfading light throughout the shift.

WHEAT Lamps were chosen after thorough tests because they performed at *maximum efficiency* throughout the entire trial period, because maintenance cost was low, and because the WHEAT Lamps delivered the *most dependable* and *most economical* light.

These lamps were purchased by Idaho-Maryland from E. D. Bullard Company, Western Distributors of WHEAT Cap Lamps.

Features of the WHEAT Lamp that caused Idaho-Maryland to select it will be explained on request. No obligation.

### FILL OUT AND MAIL THE COUPON

*Eastern and Mid-Western Bituminous Fields:* A. C. DICK, 207 Investment Bldg., 239 Fourth Ave., Pittsburgh, Pa.

*Western Bituminous and Metal Fields (including British Columbia):* E. D. BULLARD CO., San Francisco, Calif.

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MCJ 6-39

Send full information on WHEAT Electric Cap Lamps, without obligation on my part.

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Company .....

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## Ohio State Plans

### Mining Institute

An Institute of Mine Management to be held at Ohio State University June 26 to July 21 was announced today.

Arranged by the university on request of leaders in the industry, the institute program will offer lectures, demonstrations, group discussions, field experience, and trips to power plants and government bureaus.

"The institute is planned to give those who are engaged in mining a broader understanding of the industry with which they are associated. Anyone vitally interested in the coal industry is welcome to attend," according to the announcement.

Arrangements are in the hands of Professor Harry E. Nold, chairman of Ohio State's department of mine engineering, and Professor Herschel W. Nisonger, assistant director of special and adult education.

The "faculty" will include members of the university staff, representatives of various government bureaus, and men engaged in the industry.

### Lower Accident Rate Indicated by Early Returns

Early reports from mining and quarrying companies to the Bureau of Mines, United States Department of the Interior, covering operations during 1938, showed general progress in accident-prevention compared with the year 1937. The comparison is based on reports covering identical plants that were active during both years. Should a similar trend be shown by returns from companies whose reports have not yet been received by the Bureau of Mines, the record for 1938 will prove to have been a favorable one for most branches of the mineral industry as far as accidents to men employed at the mines and quarries are concerned.

The reports from operating companies also showed a reduction in the number of employes and in the number of man-hours of work performed at many properties. However, the reduction in accidents was usually greater than the decrease in employment, so that the accident rates based upon man-hours worked were generally more favorable than in 1937. Bituminous-coal mining, for example, showed a decline of 7 percent in the number of workers, 24 percent in the number of man-hours worked, but 29 percent in the number of accidents. Likewise, iron-ore mining reported a reduction of 18 percent in number of workers, 31 percent in number of man-hours worked, and 60 percent in number of accidents to the employes.

The figures upon which the comparison of 1938 with 1937 was made represent companies whose reports have thus far been tabulated by the Bureau of Mines, and they cover varying segments of the mining and quarrying industries, ranging from 23 percent in the case of limestone quarries to 61 percent in the case of slate

	Bituminous coal mines	Iron-Ore mines	Copper Mines	Lead-Zinc mines (Miss. Valley)	Minor-metal mines (Tungsten, etc.)
A Number of men employed	— 7	—18	—13	— 7	—22
B Total man-hours worked by all employes.....	—24	—31	—18	—26	—25
C Number of accidents (injuries and fatalities).	—29	—60	—57	—30	—37
D Percentage of entire industry that employes of these companies represented in 1936..	24	36	49	35	38

quarries. Bituminous-coal mines are represented by reports from companies whose employes cover approximately 24 percent of the total number of men working in bituminous-coal mines in the United States. The figures for iron-ore mines cover approximately 36 percent of the total number of employes at iron-ore mines in all states. For other classes of operations, the percentage of employment represented was 49 in the case of copper mines, 35 percent for employes at lead and zinc mines in the Mississippi Valley States; 38 percent for mines producing tungsten, quick-silver, and other minor metals; 50 percent for mines producing nonmetallic minerals other than

fuels, 46 percent for cement mills and quarries, 44 percent for marble quarries, 26 percent for trap-rock quarries, 29 percent for limekilns and quarries, 34 percent for granite quarries, and 32 percent for sandstone quarries.

Final figures for 1938 will be published by the Bureau of Mines when reports have been received from all companies that were active during that year. The following figures show percent change (1938 compared with 1937) in employment and accidents for sizable segments of the industries shown, and are made available at this time as an early indicator of the accident and employment situation in the mineral industries during 1938.

### Plant Additions by Koppers

Koppers-Rheolaveur Company, a Koppers affiliate, has been awarded a contract to make additions to the Royalton, Ill., coal washing plant of the Franklin County Coal Corporation.

A dewatering screen will be installed and addition to sluices and changes in the general plant structure.

Construction is to be completed by July 1, this year.

### Anthracite Production Gains

"Anthracite shipments this year are most encouraging," according to Mr. Louis C. Madeira III, executive director of the Anthracite Institute.

"A checking of railroad reported shipments with the sales reported to the Anthracite Institute for the first four months of this year would indicate that the industry is about 12.5 percent ahead of last year, or a total gain of about 1,970,000 tons. This was partly augmented by a large movement of coal from storage, due to increased market demand in the face of a threatened fuel shortage by reason of the bituminous coal situation.

"The largest gains, however, were made in the movement of the domestic sizes for household heating purposes, which is the encouraging feature of the increased sales.

"Increases in the sales of the steam sizes, which would replace bituminous coal for industrial and utility uses, were not so marked as the increases in the household sizes. Total sales for the first four months of 1939 are

estimated at 17,400,000 tons against 15,400,000 tons for the same period of 1938."

### Coal for Dehydrating Alfalfa

That fuel costs in dehydrating alfalfa hay by the heat from combustion of fuel can be decreased by use of bituminous coal where readily available is the conclusion of a study recently made by E. R. Kaiser, of Bituminous Coal Research, Inc., published in a pamphlet entitled "The Use of Bituminous Coal in the Dehydration of Alfalfa and Other Forage Crops."

Summarized findings are as follows:

1. Several manufacturers of dehydrators and several plant operators have shown that bituminous coal, fired by stokers, is a suitable fuel for the dehydration of forage crops. The coal is so completely burned by proper mechanical firing that the hay is not tainted.

2. The rate of heat release from the coal-fired furnace can be controlled thermostatically as with oil or gas.

3. The total annual cost of heating, including capital charges, fuel, maintenance, labor, and power, will be less with bituminous coal than with other fuels at prices that are current at many dehydrating plants. One ton of bituminous coal at 13,500 B.t.u. per pound is equivalent to 181.5 gallons of No. 5 fuel oil or 28,000 cubic feet of 1,000 B.t.u. natural gas, when used for alfalfa dehydration.

4. The cost of heating and the saving with bituminous coal can be determined for a given plant by applying the method used in the example given in the body and appendix of the report.

5. A suggested design of stoker furnace is shown, which may be modified to suit installations of various sizes.

6. The manufacturers and users of dehydrators are urged to consider the savings possible with coal and to equip their machines with furnaces and stokers for use with bituminous coal wherever this coal is readily available and economical.

7. The marked saving in nutrients and the improved quality of dehydrated hay as the result of artificial drying are sufficient to warrant consideration of such drying for use at large dairy and hay farms for the production of whole hay.

## Price Hill Colliery Sold

The properties of the Price Hill Colliery Company have been purchased at a receivers' sale by the New River Company, one of the largest producers in the Winding Gulf soft coal fields of West Virginia.

The Price Hill mine, closed in May 1938, was sold to satisfy about \$205,000 in claims. The purchase included the tippie, company houses and 2,500 acres of coal land, and was made by bidders representing C. H. Sprague and Sons of Boston, Mass., majority stockholder in the New River Company.

Edward Graff, vice president and general manager of New River Company, said the mine would not be reopened but would be worked through the New River's adjacent Cranberry mine.

## Side Lines to Mark Cripple Creek Ownership

Action to preclude future apex litigation in the Cripple Creek, Colo., district, was taken by the recent signing by the Carleton and Stratton Estate Mining Companies of joint side line agreements under which they agreed to consign all boundaries of claims to be actual claims themselves, with no regard for ore vein apexes or extralateral rights. The agreements signed cover all properties now owned or subsequently acquired by the two interests.

The agreement was signed by Merrill E. Shoup, president of the Carleton interests, and D. P. Strickler for the Stratton Estate Mining Company.

The two officials, in announcing the agreement, declared that there is no litigation of any kind between their companies now, and so far as they know no apex litigation in the district. The last one was about 20 years ago.

## Eagle-Picher Completes Commerce Absorption

With the consolidation of offices and departments early in April, the Eagle-Picher Mining and Smelting Company completed taking over the mining properties of the Commerce Mining and Royalty Company, which were acquired by the former company last December 28 in the largest transaction ever consummated in the Tri-State District.

Actual operation of the Commerce properties as part of the district-wide operations of the Eagle-Picher Company became effective April 1.

General mine operating offices of the Eagle-Picher Company were moved from Picher to Miami, where G. C. Niday, general manager of the Tri-State District mines, will direct operations of the company. Accounting and engineering departments also moved to Miami.

The ore purchasing and loading departments remain at Picher, as do the machine shops and reclaiming departments, for a time at least, and those of the Commerce Company at Cardin will be maintained.

Field operating departments, including mines and mills, are centered at Cardin, where the Commerce Company formerly maintained operating offices and general supply warehouses and central shops. H. W. Harrison is general superintendent, and Elmer Isern general mill superintendent.

Other department heads as announced by the company include the following: R. J. Stroup, superintendent in charge of ore transportation; Jack Gilbert, superintendent of Missouri operations; R. K. Stroup, in charge of the land and leasing department; Tell Hendrick, master mechanic; Walter Jenkins, carpentry, and George M. Fowler, consulting geologist. Assistant mine superintendents include Norton Ritter, Frank Cuddeback, Robert Tuthill and Pat McLaughlin.

## —BOOK REVIEWS—

**Mining Handbook of Australia**, 2nd edition, Tait Publishing Company, Melbourne, Australia, 1939, 432 pages, price about \$6; G. E. Stechert & Company, New York City, selling agents.

Within the covers of this directory are listed all of the mines of Australia and others in which Australians are interested—in New Guinea, in Fiji, in New Zealand, and in Malaya. These include many important copper, gold, iron, lead-silver-zinc, and tin producers with large reserves and large capacity plants. The companies searching for petroleum are also listed.

Three years have elapsed since the first edition appeared, and the management, finance, property, ore or gravel occurrence, mining method, ore-dressing and treatment, and results of each company are given in an informative and complete form. The style is somewhat similar to that of the *Mines Register* (New York City), *Mining Manual* (London), and *Canadian Mines Handbook* (Toronto). Any American engineer who is or may be interested in Australian operations, should procure a copy of this well-prepared listing.—M. W. von Bernewitz.

**Metal Statistics — 1939**, *American Metal Market*, 111 John Street, New York City. 632 pp. Price \$2.00.

This valuable and well known "little red book" contains the usual assortment of statistical information on ferrous and non-ferrous metals and miscellaneous economic subjects, and numerous additions and alterations have again been made.

Added features include a new series of monthly tables on foreign and domestic copper production, deliveries and stocks; copper refiners' bids for No. 1 wire scrap; rolled steel "production for sale," molybdenum, ferrosilicon, magnesite, monthly average prices on two grades of remelted aluminum and numerous expansions—all tending to increase its all-round general usefulness. The book is one of the most valuable of its kind, and should find a place on the desk of every interested individual.

## PUBLICATIONS of INTEREST

**ESSENTIAL MINERALS FOR NATIONAL DEFENSE**. Bulletin No. 250 of the Mining and Metallurgical Society of America. 12 pp. An interesting and timely review of the status of the United States with respect to some 40 essential minerals for national defense.

**PROCEEDINGS OF THE TWENTY-FOURTH FUEL ENGINEERING CONFERENCE**, sponsored by Fuel Engineering Division of Appalachian Coals, Inc.

**CALIFORNIA MINERAL PRODUCTION AND DIRECTORY OF MINERAL PRODUCERS FOR 1937**, by Henry H. Symons. Bulletin 116 of California Division of Mines, Walter W. Bradley, State Mineralogist. 202 pp.

**FORTIETH ANNUAL REPORT OF THE MINING INDUSTRY OF IDAHO FOR THE YEAR 1938**, by Arthur Campbell, Inspector of Mines. 276 pp.

**PHILIPPINE MINING YEAR BOOK**, official publication of the Chamber of Mines of the Philippines. 244 pp. plus XXVI. Price, \$1. A very thorough review, copiously illustrated, of the Philippine mining industry. In addition to historical and technical articles, much space is devoted to personnel of the various mining companies.

### DIAMOND CORE DRILLING CONTRACTORS

TESTING COAL AND ALL MINERAL PROPERTIES—USING OUR LIGHT GASOLINE DRILLS... THEY SAVE FUEL AND MOVING COSTS... WE GUARANTEE SATISFACTORY AND PROPER CORES...

PRE-PRESSURE GROUTING FOR MINE SHAFTS... GROUND SOLIDIFICATION FOR WET MINE AREAS BY OUR STOP GROUT METHOD. WATER WELLS AND DISCHARGE HOLES DRILLED AND GROUTED... ELECTRIC DRILLS FOR INSIDE MINE DRILLING...



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### MOTT CORE DRILLING CO.

HUNTINGTON, W. VA.



# PERSONALS



GEORGE WATKIN EVANS, consulting engineer of Seattle, Wash., spent March and a part of April examining placer deposits in the Yreka district of northern California and lode deposits in the Yuma district of Arizona and California.

H. J. MCCLELLAND, previously stationed at Metaline Falls, Wash., with the American Zinc, Lead and Smelting Co., has recently moved to Kellogg, Idaho, necessitated by closing down of the Metaline Falls property. McClelland plans to do mill consultant work in Idaho.

BYRON WILSON is now at Leadville, Colo., in charge of the Resurrection Mining Company, a concern owned by the Newmont Mining Corporation and Hecla Mining Company which is under the management of the Hecla staff. Previous to this, Mr. Wilson had been superintendent of the Polaris mine at Wallace, Idaho.

WILLIAM A. FEALY is now sales engineer in the wire rope division of the Bethlehem Steel Corporation, with offices at Salt Lake City, Utah. Fealy was recently general superintendent of the Eagle Shawmut mine at Chinese Camp, Calif.

G. DONALD EMIGH, mining engineer on the staff of the U. S. Vanadium Corporation for the past two years, was recently transferred to Nevada. Mail may be addressed to him at Box 632, Las Vegas.

WILLIAM A. FAUST, JR., recently left for Argentine to take a position with the Aguilar Corporation which operates properties in Aguilar district of Jujuy Province. Previous to this move Mr. Faust had been employed as assayer at the Montana mine of the Eagle-Picher Mining and Smelting Company at Ruby, Ariz.

Prominent mining men who presented testimony before the Senate Education and Labor Committee late in May relating their experiences operating under the National Labor Relations Act included: D. D. MOFFAT, vice president of the American Mining Congress and vice president of the Utah Copper Co.; HORACE MOSES, manager of Chino mines of Nevada Consolidated Copper Corporation of New Mexico; ROSS LEISK, general

manager of the Sunshine Mining Co., of Idaho; DONALD A. CALLAHAN, vice president of the American Mining Congress; JESSE O. BETTERTON, general manager of the copper and lead refineries of the American Smelting and Refining Co.; H. P. HENDERSON, president of Texas Mining and Smelting Co.; JOSEPH W. WALTON, vice president, Hillside Mines, Inc.; and DAVID P. STRICKLER, attorney for Golden Cycle Corporation.

In presenting their statements, these men urged favorable consideration of amendments which would make the Labor Relations Act a fairer and more workable instrument.

ROBERT G. GRAHAM, president of the Kemmerer Gem Coal Co., Norton, Va., was recently elected to the Board of Directors of the Virginia State Chamber of Commerce.

LAWRENCE B. WRIGHT, of Wright, Dolbear and Co., Ltd., has just completed an examination of the Knob Hill Mines, Inc., at Republic, Wash.

CLARK WALKER, of Fairmont, W. Va., has been appointed representative of the Mine Safety Appliances Company in the Fairmont district, and will work in cooperation with H. R. JOHNSON, district manager of the company's Uniontown office.

ED FLYNN, chief coal mine inspector of the Tennessee Coal, Iron and Railroad Company for 29 years, retired May 1, according to an announcement by C. E. ABBOTT, vice president in charge of raw materials. Mr. Flynn's retirement brings to a close a long and eventful association with the Tennessee Company. Looking back upon his years of association with the coal mining industry, he is most impressed with the progress of the safety movement in mining, giving much of the credit for this event to the improvement of ventilating methods in mines.

Mr. Flynn was succeeded by ANGUS R. BROWN, previously superintendent of ventilation of the coal mines department of the company.

CHARLES E. LOCKE, for long a member of the faculty of the department of mining engineering of the Massachusetts Institute of Technology, has been appointed acting head of this department, succeeding W. SPENCER HUTCHINSON.

Ex-President HERBERT HOOVER will be guest of honor in the celebration of Engineers' Day on July 13 at the Golden Gate International Exposition. At the morning session on Treasure Island he will discuss the contributions which engineering has made to human welfare, and it is expected that he will also be present at a large gathering of engineers at dinner in the evening.

## —Obituaries—

JOSEPH W. ALLEN, secretary-treasurer of the Greene Cananea Copper Company and of the Inspiration Consolidated Copper Company, died suddenly May 10 at Elizabeth, N. J., of

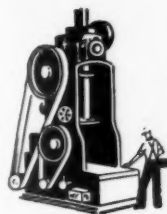


a heart attack. His association with Anaconda Copper Mining Company and its subsidiaries extended over a period of 32 years.

WILLIAM CLIFFORD STEVENS, vice president in charge of engineering, secretary, and director of Cutler-Hammer, Inc., Milwaukee, Wis., since 1930, died May 15. Mr. Stevens had been associated with the Cutler-Hammer Company since his graduation from Cornell University in 1906.

D. LOCKE, Central State Collieries, Inc., whose contribution to the Miners Exhibit at the Cincinnati Coal Convention was among the ten prize winners, recently passed away. His exhibit consisted of an ingenious buggy for transporting truck tires.

THOMAS C. BEURY, SR., prominent coal operator of Charleston, W. Va., died on May 9 of a heart attack after a week's illness. His age was 65. Mr. Beury came to Charleston in 1898 and later acquired extensive interests in the New River soft coal field.

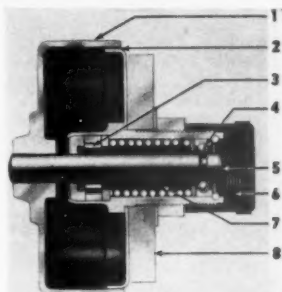


# MANUFACTURERS' Forum

## High Speed Anti-Friction Idler Pulley

The widespread acceptance of an economical, free-running idler pulley in the textile industry has led S K F Industries, Inc., Philadelphia, to develop this unit for machines in other industries having light and medium duty high speed belt drives. More than 1,870,000 of these units are in use on textile spinning and twisting frames and on similar drives.

The ball and roller bearing idler pulley consists of a balanced standard or special pulley (1), which is provided with a dust-proof protective cover (2) to form an effective seal. This seal eliminates all types of abrasive dust from the relatively heavy-duty roller bearing (3), and the stabilizing ball bearing (4). These



special bearings run directly on a through-hardened, chrome steel shaft (5), which gives the unit a maximum capacity within its compact dimensions. The ball bearing (4) acts as an outboard bearing and insures surface-to-surface contact between the rollers and the shaft at all times. Grease cup (6) is provided so that a measured amount of grease may be placed in it every second year. At the time of the unit's assembly in the factory, an adequate amount of grease is placed in the large reservoir (7) to last the initial two years' operation (approximately 10,000 operating hours). Number (8) indicates the ease with which the unit is mounted.

## Hand Wheel Control Transmissions

A new series of "Select-O-Speed" Transmissions with hand wheel control is being announced by the Ideal Commutator Dresser Company, 1963 Park Avenue, Sycamore, Ill.

These new models supplement the standard line from fractional to 7½ h.p. capacity that are equipped with lever type control. The hand wheel is recommended where finer speed adjustments and smaller increments of

speed are necessary. By turning the wheel only a partial turn it is easy to change the speed only a few revolutions per minute.

This type of control is especially desirable for installations requiring remote control. By replacing the hand wheel with a set of beveled gears and extension rod and universal joint, the point of control may be taken to a more convenient location.

Hand wheel control is available on S-O-S variable speed transmissions of sizes from 1½ to 7½ h.p. capacity.

## Grease Gun

The "Gemco Tru-Blu" Grease Gun, manufactured by Gibraltar Equip. and Mfg. Co., St. Louis, Mo., has been designed to best fill the real need for a superior, more practical and economical grease gun. It has all desirable qualities and fully meets every service requirement, both underground and in and around the tippie and mine shops. It is efficient, can be used anywhere, is built of light weight high strength alloys, is easy to use in everyday service, and it is within the price range of every mining operation.

Further details will gladly be furnished on request.

## Hull-Rust Pit at the New York Fair



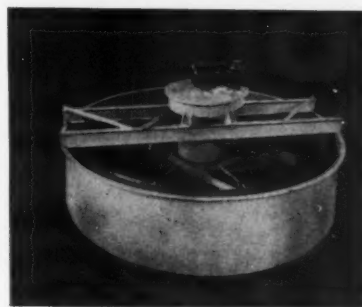
The largest man-made hole on the face of the earth—the huge Hull-Rust pit of the Oliver Iron Mining Company, in the Missabe iron range of Minnesota, is on view in miniature in the United States Steel Subsidiaries' exhibit at the New York World's Fair

## Improved Method of Classification

Important improvements in classification have been incorporated in the new Hardinge Hydro-Classifier, announced by Hardinge Company, Incorporated, of York, Pa.

The new design provides two outstanding advantages: improved performance and low operating cost.

The first is achieved by design. The



driving head embodies a geared head motor and the cast iron housing upon which it is mounted. A cut tooth gear rotates on ball bearings in oil within the housing.

Sand, or oversize, in the classifier is delivered through a central opening, in the bottom of the tank, which is surrounded by a whirling vortex of water which assure proper desliming of settled solids, and a clean oversize.

A multi-speed motor is used in order that the scraping may be varied in speed to meet existing requirements, and to provide repulping.

## Cobb Promoted By U. S. Rubber

Willard H. Cobb, for the past several years general factory manager, mechanical goods plants, United States Rubber Co., has been appointed general manager of the Mechanical Goods and General Products divisions. This position includes supervision of the manufacture of Lastex yarn and rubber thread.

In announcing the appointment, F. B. Davis, Jr., president, said that it was in line with the policy of promoting from within to fill important positions in the company.

Herbert E. Smith, vice president, will continue supervision of all the activities of the divisions.

A graduate of Stevens Institute of Technology, Mr. Cobb joined United States Rubber Company in 1914. During the ensuing years, he has made steady progress through the organization to his new assignment.



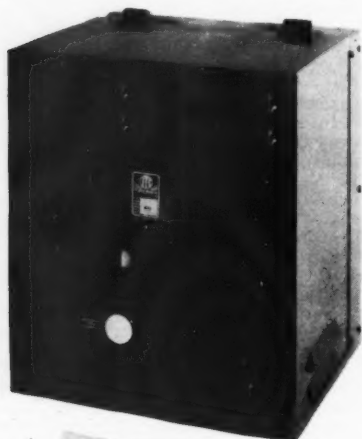
## Load Distributor and Manually Operated Circuit Breaker

The I-T-E Circuit Breaker Company of Philadelphia has developed a new type LDR Load Distributor to improve service from one or more mining motor generator sets operating in parallel in the same trolley and feeder



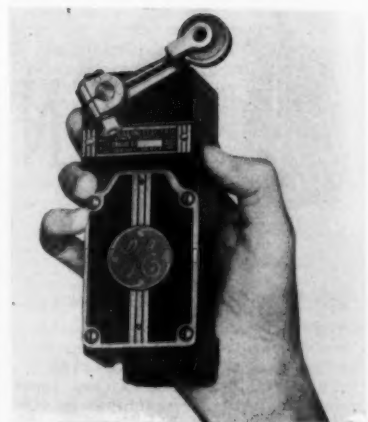
system but at widely separated locations. The company states that this unit in such installations limits overload peaks, maintains better service, balances substation loads, lowers capacity requirements, reduces breaker outages, prolongs armature life and lessens commutator burning.

This device comes completely wired and ready for installation on a standard ebony asbestos panel 16-in. wide x 28-in. high 1½-in. thick. A glass paneled steel cover enclosing the op-



erating mechanism may, by loosening four thumb screws, be easily removed for making the adjustment at which the Load Distributor operates. This relay is fully described and test data presented in the company's new bulletin 3904.

Also recently developed by I-T-E is a small type KWB manually operated sectionalizing circuit breaker for use on small circuits ahead of the customary automatic reclosing circuit breaker unit. This smaller device protects lesser important branch circuits and is an extremely compact, manually operated, air circuit breaker combining the features of the ordinary contactor with those of the modern air circuit breaker. The operating mechanism is of unusually rugged construction adapting it to service where frequent operation is necessary. The unit is usually a single pole device whose contacts are butt type and made of indestructible non-welding, non-oxidizing material and are easily replaceable. Contact pressures are high. Series wound blowout coils imbedded in molded barriers are standard for all voltages. These KWB breakers are encased in steel and designed for underground service.



designers and users for an inexpensive limit switch that not only would be small in size but which would also operate slowly without contact burning and be proof against oil and dirt around a machine.

This switch is enclosed in a sturdy die-cast case, drilled to facilitate mounting on either back or side. Silver-to-silver double-break contacts assure long life while two independent circuits provide any contact arrangement. Positive snap-action is obtained by means of an over-center toggle mechanism. The switch can be supplied with either a roller-lever or push-rod head. A gasketed cover and grease seals on the push-rod and shaft make it oil-proof. Ample space inside the enclosure, as well as easily accessible terminals, permit rapid and simple installation.

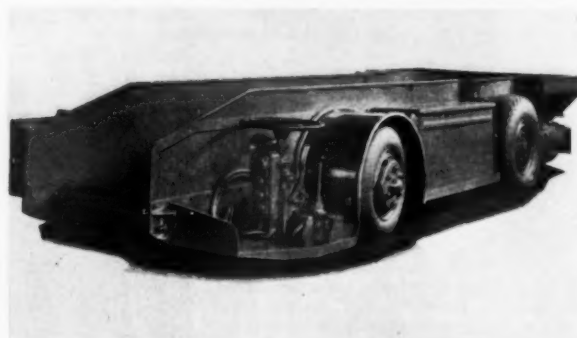
## Small Snap-Action Limit Switch

Designed for use on machine tools, conveyors and other automatic equipment, a small, snap-action limit switch recently announced by General Electric has the advantage of being so constructed that it can be easily mounted for operation in practically any position. The new device was developed to meet a need among machine

Important equipment items displayed by Joy Mfg. Co. at Coal Exposition.

Above—32-in. shuttle car of permissible type with removable back for loading in low seams.

Below—The 14-bu. loader, a low-vein machine only 26 in. high





HARLOWE HARDINGE was elected president of Hardinge Company, Inc., at a meeting of the board of directors held in New York City, April 3. He succeeds MR. H. W. HARDINGE, who is now chairman of the board. The progressive policies of the company



will be continued, and in no way affected by the change in officers, as Mr. Harlowe Hardinge for the last 16 years has personally directed the affairs of the company as vice president and general manager.

At the same meeting, F. E. FINCH was elected vice president and secretary.

MARVIN W. SMITH, manager of engineering of the Westinghouse Electric and Manufacturing Company, was elected a vice president of the company by the board of directors on April 26. Mr. Smith, who will direct all the company's engineering activities, has been associated with Westinghouse since the day he left college in 1915.

#### Link-Belt Acquires Speeder Machinery Corp.

Consolidation of Speeder Machinery Corporation, Cedar Rapids, Iowa, manufacturers of  $\frac{3}{4}$ -yard to  $\frac{1}{2}$ -yard power operated excavating and materials handling shovels, draglines, cranes, and the Shovel Division of Link-Belt Company, has been announced by Alfred Kauffmann, president of Link-Belt Company, Chicago.

For the present each organization will continue to operate independently. The merger consolidates the products of these two well known manufacturers into a complete line of shovels, draglines, cranes ranging from  $\frac{3}{4}$ -yard to the  $2\frac{1}{2}$ -yard crawler-mounted units. This change also makes available to the Speeder Machinery Corporation a full size range of Link-Belt locomotive cranes.

Combined facilities and full control of all sales and manufacturing operations are expected to benefit both production and distribution.

Speeder Machinery Corporation will be operated as a subsidiary of Link-Belt Company with the present management continuing to operate the business. T. M. Deal will continue as president.

## CATALOGS AND BULLETINS

• **CABLE** *Anaconda Wire & Cable Co.*, 25 Broadway, New York City. Company's ANW insulated cable for moist locations without lead sheets. 4 pages.

• **COMPRESSED AIR RECEIVERS.** *Ingersoll-Rand Co.*, Phillipsburg, N. J. Form 9202 on company's complete line of standard air receiver, available for maximum pressures of 125, 250, 350 and 500 lbs. 4 pages.

• **COMPRESSORS.** *Ingersoll-Rand Co.*, Phillipsburg, N. J. Form 3063-A on company's complete line of "ES" compressors, built in sizes from 10 to 125 h.p. and pressures from 5 to 2,500 lbs. These machines are available for a variety of drives, including "V" belts, short belts, direct connected electric and steam; they have found wide application in many industries. 28 pages.

• **DRILL SHARPENER.** *Ingersoll-Rand Co.*, Phillipsburg, N. J. Form 2176-A on company's line of rock-drill-steel sharpeners and oil furnaces designed for use in mines, quarries and other industries employing rock drilling machinery. 4 pages.

• **ELECTRICAL EQUIPMENT.** *The Electric Controller & Mfg. Co.*, Cleveland, Ohio. Folder on company's frequency relay magnetic control for AC wound-rotor motor.

*Westinghouse Electric & Mfg. Co.*, E. Pittsburgh, Pa. Descriptive Data 11-200 on the new non-reversing line starters for squirrel-cage and wound-rotor motors. 1 page.

Descriptive Data 29-080 on type AB-20 De-Ion air circuit breakers. 4 pages.

Descriptive Data 33-123 gives specifications and applications of a solenoid operating mechanism for fast reclosing of high voltage circuit breakers. 4 pages.

Descriptive Data 9600 on DC magnetic crane controllers for hoists, bridge and trolley service. The controllers, for series wound motors, are designed for high speed light hook lowering and dynamic braking. 8 pages.

Descriptive Data 15-100 on company's new type SM heavy duty master switches for mill and crane controllers. 2 pages.

Leaflet 1734-B carries instructions for the manufacture and care of grid type resistors for DC and AC motors. 2 pages.

• **ELECTRIC MOTORS.** *Allis-Chalmers Mfg. Co.*, Milwaukee, Wis. Leaflet 2183A on company's "Lo Maintenance" direct current motors and generators. 4 pages. Leaflet 2125C on explosion proof motors. 4 pages.

*The Louis Allis Co.*, Milwaukee, Wis. Bulletin 508E on company's explosion proof motors. 12 pages.

• **EYE PROTECTIVE EQUIPMENT.** *Mine Safety Appliances Co.*, Pittsburgh, Pa. Bulletin CE-8 on complete line of eye protective equipment. 8 pages.

• **FEEDERS, CONVEYORS AND SCREENS.** *Allis-Chalmers Mfg. Co.*, Milwaukee, Wis. Bulletin 1833-A on complete line of Utah electro-magnetic feeders, conveyors and screens which operate without rotating or sliding parts. 12 pages.

• **FIRE BLANKET.** *Mine Safety Appliances Co.*, Pittsburgh, Pa. Bulletin FA-63 gives a full description of the MSA fire blanket. 1 page.

• **MILLING EQUIPMENT.** *David Cole, Mills Bldg.*, El Paso, Texas. Bulletin 103 on some items of new machinery especially designed for the small mine operator. 12 pages.

*Denver Equipment Co.*, Denver, Colo. Bulletin 8-O-B on how you can obtain a 25 or a 50-ton mill direct from Denver stock. All items are briefly described and illustrated. 8 pages.

• **SPEED CONTROL EQUIPMENT.** *Allis-Chalmers Mfg. Co.*, Milwaukee, Wis. Bulletin 1261-B on stationary control type of vari-pitch tetrope sheaves for occasional changes of speed, and the motion control type for use where frequent speed changes are necessary. 16 pages.

• **STRIPPING EQUIPMENT.** *Bucyrus-Erie Co.*, South Milwaukee, Wis. Bulletin 12NVV3QV8 on the many applications of company's long range dragline. 24 pages.

• **TRACTORS AND ROAD MACHINERY.** *Caterpillar Tractor Co.*, Peoria, Ill. Form 5205 on the mechanical features of Caterpillar Diesel tractors, engines and road machinery. 16 pages.

• **WELDING EQUIPMENT.** *Westinghouse Electric & Mfg. Co.*, E. Pittsburgh, Pa. Descriptive Data 26-320 on the Midget Marvel Flexarc a-c welder, comprising a special transformer and control for a-c arc welding. 4 pages.

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**AUTOMATIC RECLOSING**  
**CIRCUIT BREAKERS**

Raise production; reduce fire hazard; lower maintenance charges; decrease total energy consumption and power demand. These advantages with Automatic Reclosing Circuit Breakers are fully described in I-T-E bulletins based on actual installations in mines.

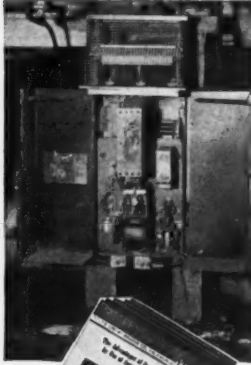

At right—Each circuit breaker controls a section, confining disturbances to the area in which they arise.

Representatives in  
Principal Mining Areas

**BULLETINS TELL THE STORY**

These bulletins deal with a variety of mining conditions. Copies will be gladly furnished on request.

**I-T-E CIRCUIT BREAKER CO.**  
 PHILADELPHIA, PA.

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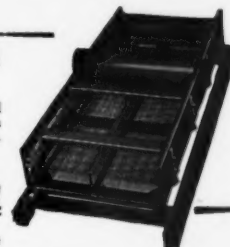
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MINIMUM RECOMMENDED SHEAVE DIAMETER 30 TIMES  
DIAMETER OF ROPE (6 x 19 CONSTRUCTION)

*This sheave permits uniform rope wear*

SHEAVE DIAMETER TOO SMALL  
CAUSING PREMATURE WIRE FAILURE

*This sheave shortens rope life....*

● A uniformly worn rope provides economy and safety throughout its life. A sheave of proper diameter *becomes an aid* to rope service and safety. Don't jeopardize these advantages by using sheaves of such small diameter that the rope is ruined through fatigue instead of wearing out naturally.

TRU-LAY Preformed Wire Rope best resists the destructive forces of bending stresses under *all* conditions—even when sheaves, of necessity, are small in diameter.

Your American Cable engineer will gladly assist you with sheave or other rope engineering problems. For detailed information and data see our Wire Rope Catalog, a complimentary copy of which we will be pleased to send anyone interested.

**BUY ACCO QUALITY** whether it is American Cable Wire Rope and Slings—American Chains (Weed Tire Chains, Welded and Weldless Chains)—Campbell Abrasive Cutting Machines—Ford Chain Blocks—Page Chain Link Fence—Page Welding Wire—Page Traffic Tape—Reading-Pratt & Cady Valves—or any other of the 137 ACCO Quality Products.

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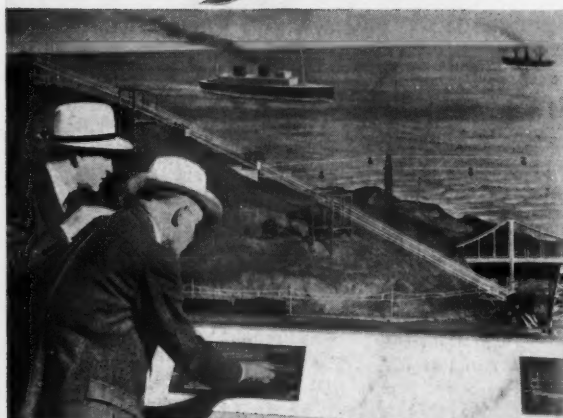
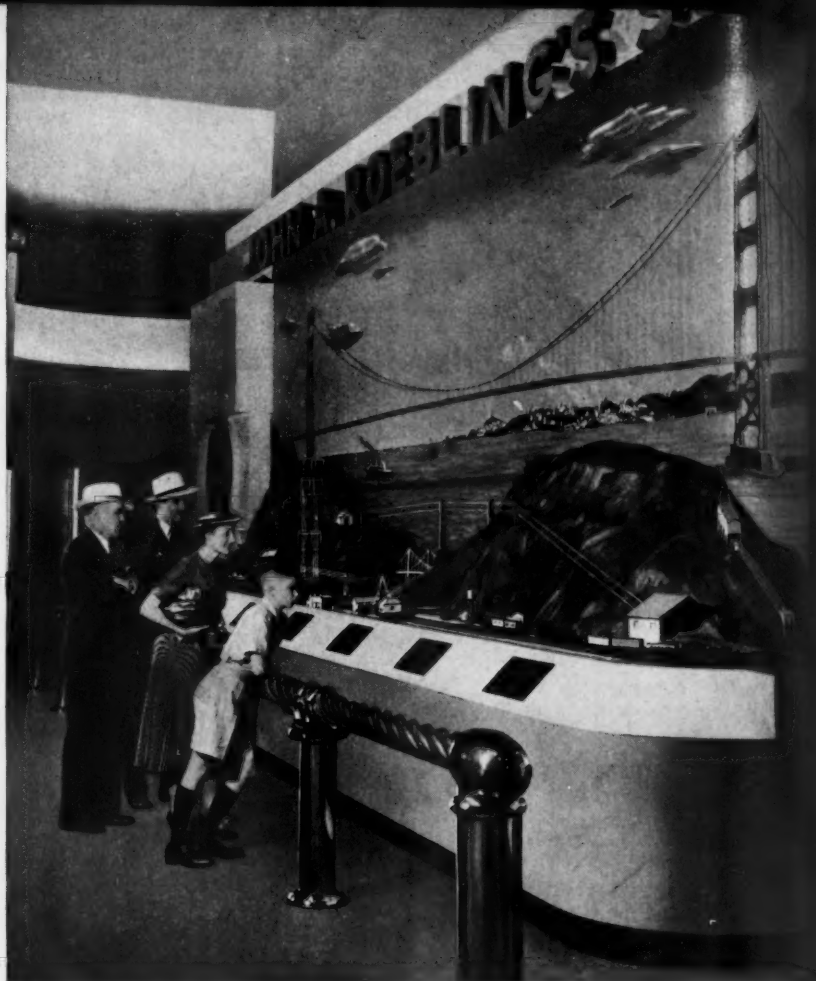
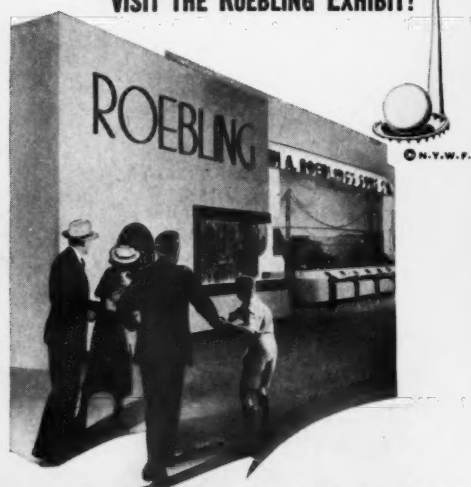
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"THIS WILL INTEREST YOU, JOHNNY... a whole village in miniature. See, there's a school, a church, a fire house, some stores—even a water tower and a railroad station. And look... here comes the train!"



TO YOU and your family... a hearty invitation to visit the Roebling Exhibit at the New York World's Fair!

No matter what your business activity... engineering, contracting, mining, rail-roading, manufacturing, building management or what-not... you will find that this Roebling Exhibit is designed specifically to interest *you*—to help make *your* visit instructive and keenly enjoyable.

Action every moment! Mining, construction, dredging and other industrial operations in full swing! All in miniature... with excavating, hoisting, and conveying equipment incredibly exact in detail. Even the tiny wire ropes and cables are exact duplicates of their full-size counterparts!

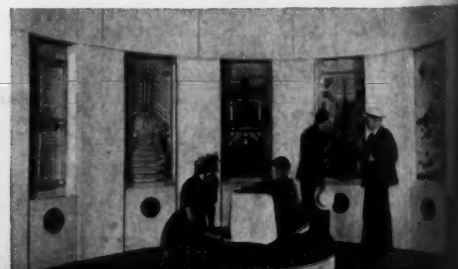
So come... you and your family. We will give you a royal welcome. And remember... we are in the Metals Building, directly in front of the Trylon and Perisphere.

JOHN A ROEBLING'S SONS COMPANY, TRENTON, N. J.

## ROEBLING

WIRE ROPE & FITTINGS • ELECTRIC WIRE & CABLE • FLAT WIRE • WOVEN WIRE FABRICS • WELDING WIRE • OTHER WIRES & WIRE PRODUCTS

"WHILE MARY AND JOHNNY ARE RESTING, suppose you and I look over this interesting exhibit of Roebling Products. There are more of them in the other rotunda, at the opposite end of the exhibit."



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